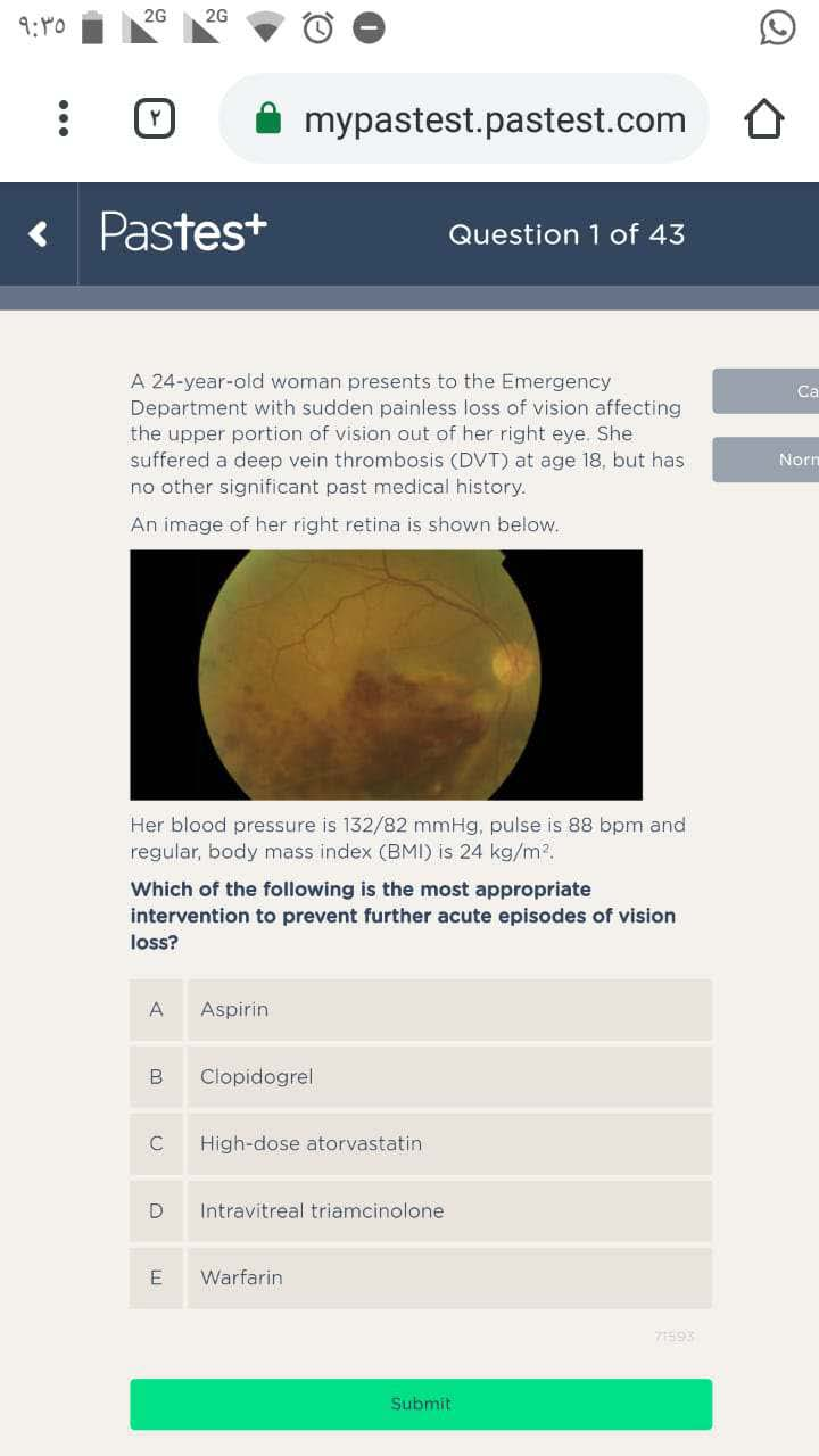

A 24-year-old woman presents to the Emergency Department with sudden painless loss of vision affecting the upper portion of vision out of her right eye. She suffered a deep vein thrombosis (DVT) at age 18, but has no other significant past medical history.

An image of her right retina is shown below.

Her blood pressure is 132/82 mmHg, pulse is 88 bpm and regular, body mass index (BMI) is 24 kg/m².

Which of the following is the most appropriate intervention to prevent further acute episodes of vision loss?

A	Aspirin
B	Clopidogrel
C	High-dose atorvastatin
D	Intravitreal triamcinolone
E	Warfarin

71593

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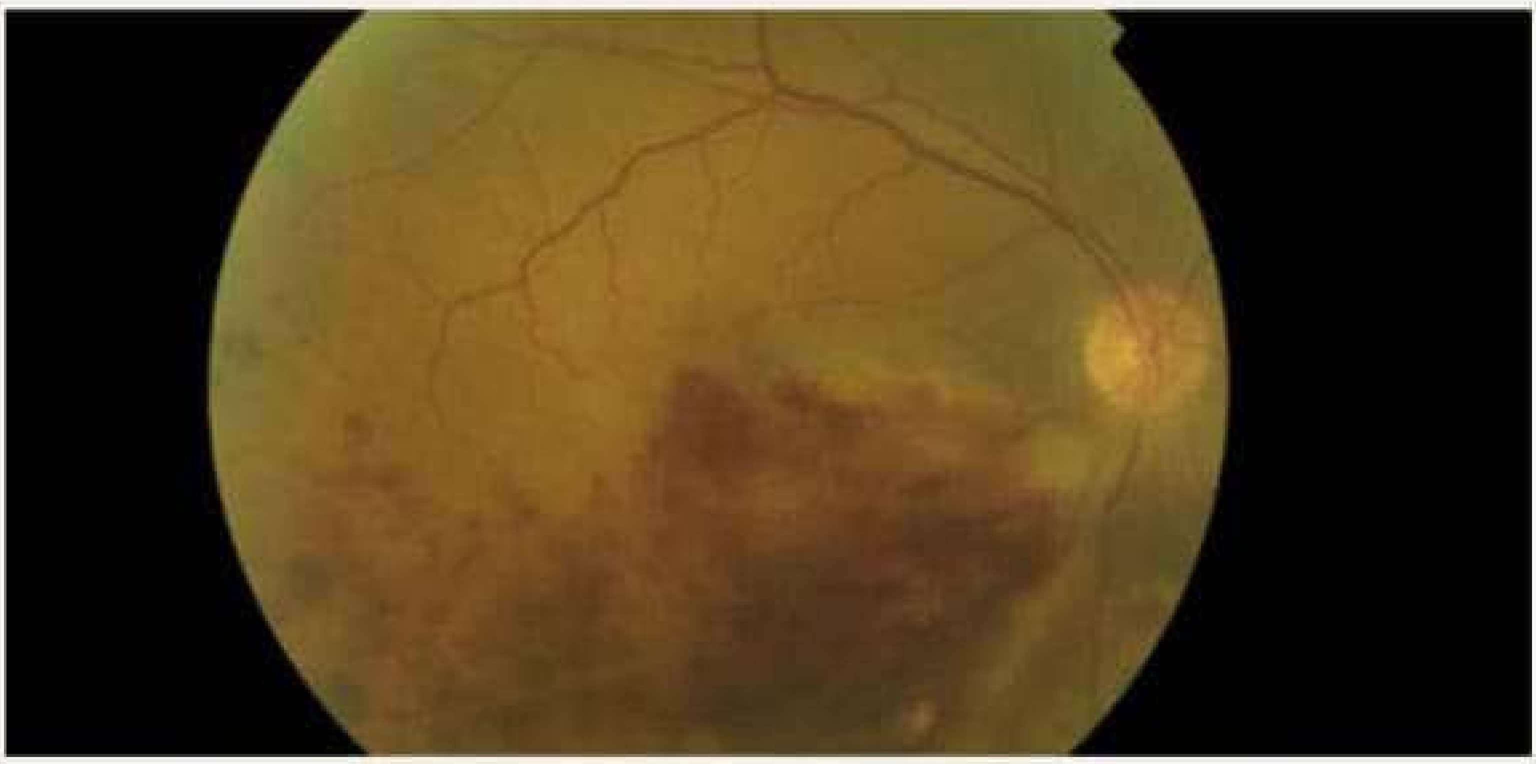

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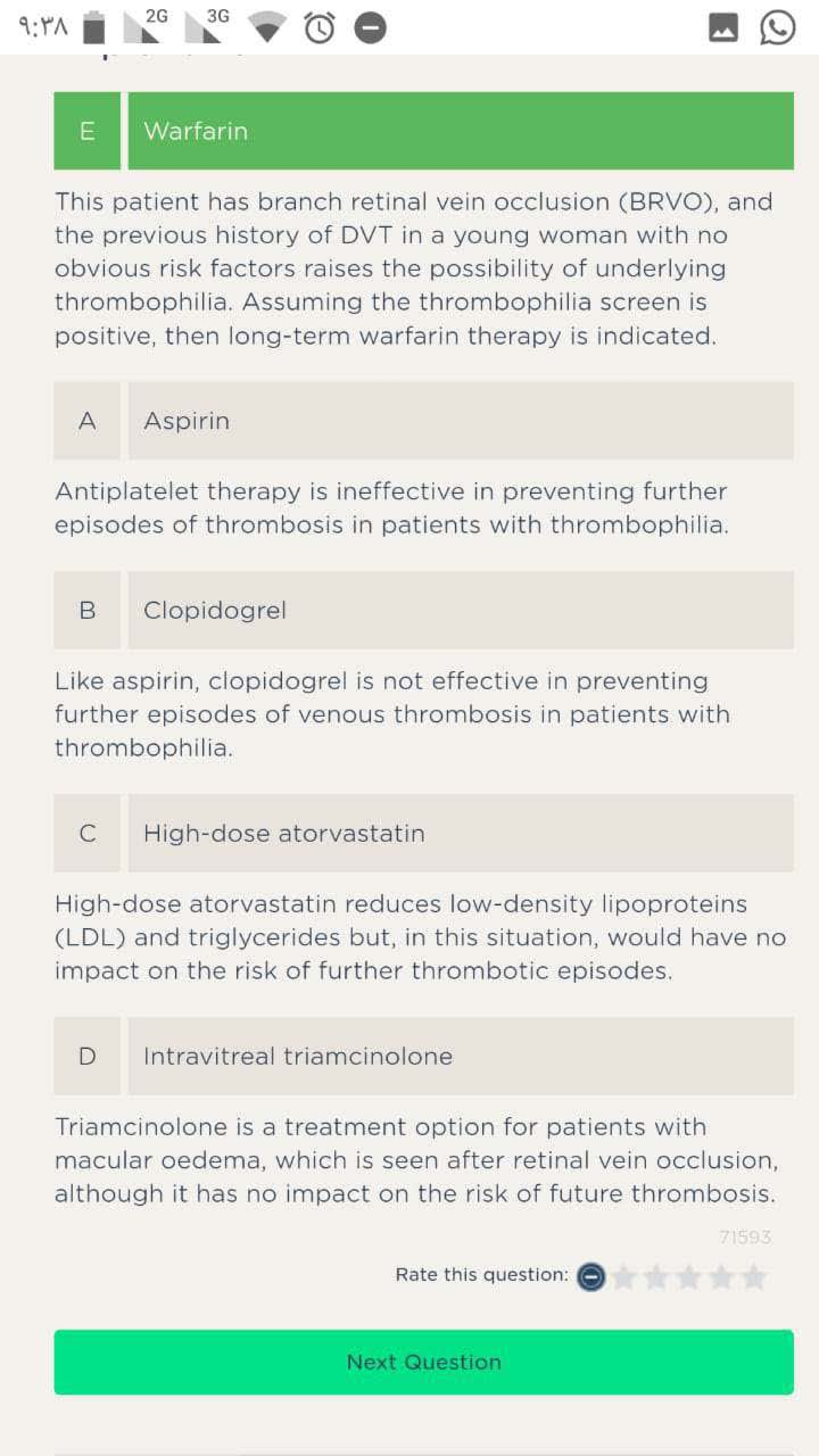
Explanation



E **Warfarin**

This patient has branch retinal vein occlusion (BRVO), and the previous history of DVT in a young woman with no obvious risk factors raises the possibility of underlying thrombophilia. Assuming the thrombophilia screen is positive, then long-term warfarin therapy is indicated.

A Aspirin

Antiplatelet therapy is ineffective in preventing further episodes of thrombosis in patients with thrombophilia.

B Clopidogrel

Like aspirin, clopidogrel is not effective in preventing further episodes of venous thrombosis in patients with thrombophilia.

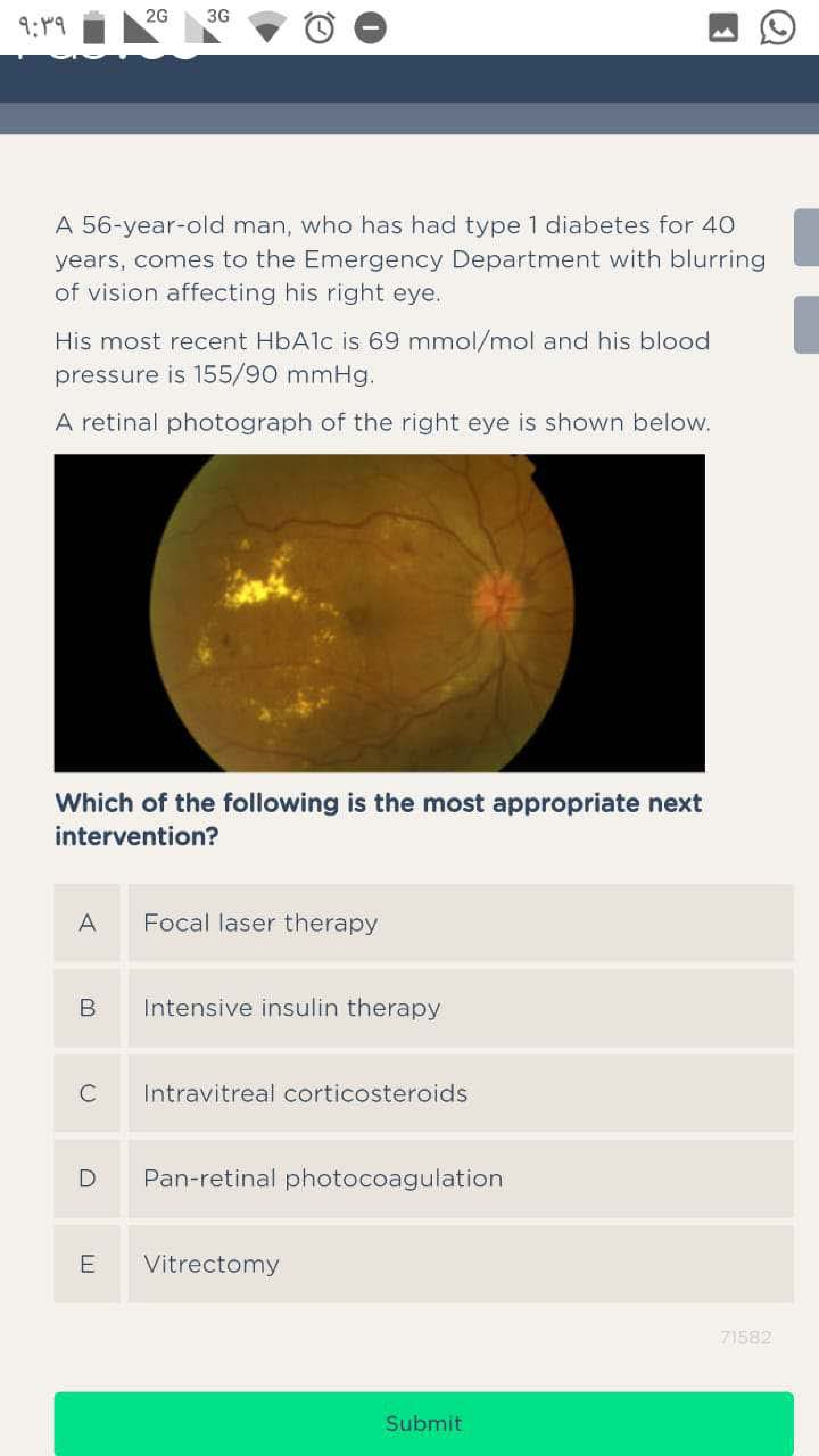
C High-dose atorvastatin

High-dose atorvastatin reduces low-density lipoproteins (LDL) and triglycerides but, in this situation, would have no impact on the risk of further thrombotic episodes.

D Intravitreal triamcinolone

Triamcinolone is a treatment option for patients with macular oedema, which is seen after retinal vein occlusion, although it has no impact on the risk of future thrombosis.

71593



A 56-year-old man, who has had type 1 diabetes for 40 years, comes to the Emergency Department with blurring of vision affecting his right eye.

His most recent HbA1c is 69 mmol/mol and his blood pressure is 155/90 mmHg.

A retinal photograph of the right eye is shown below.

Which of the following is the most appropriate next intervention?

- A Focal laser therapy
- B Intensive insulin therapy
- C Intravitreal corticosteroids
- D Pan-retinal photocoagulation
- E Vitrectomy

71582

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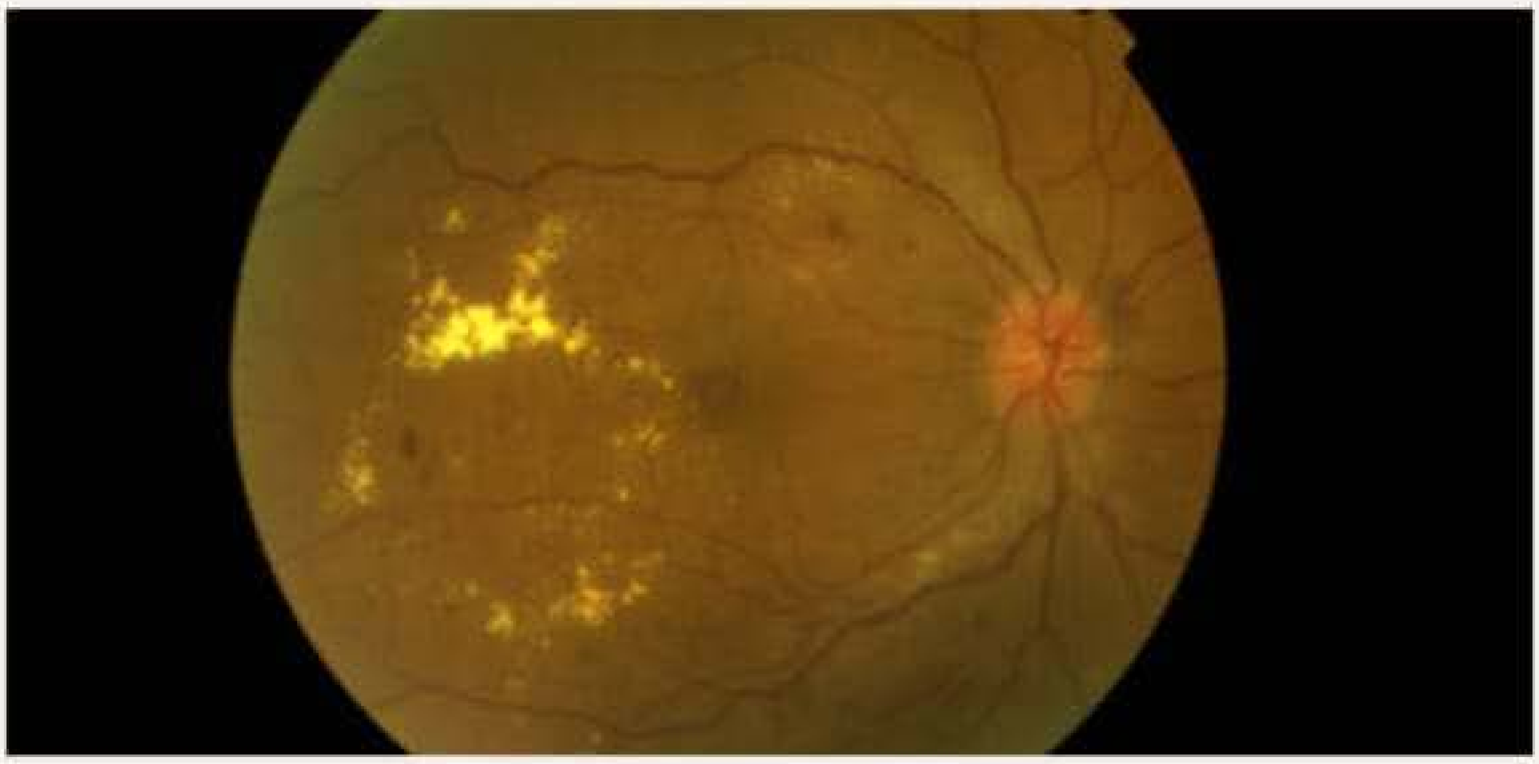

Which of the following is the most appropriate next intervention?

Res
Res
Res
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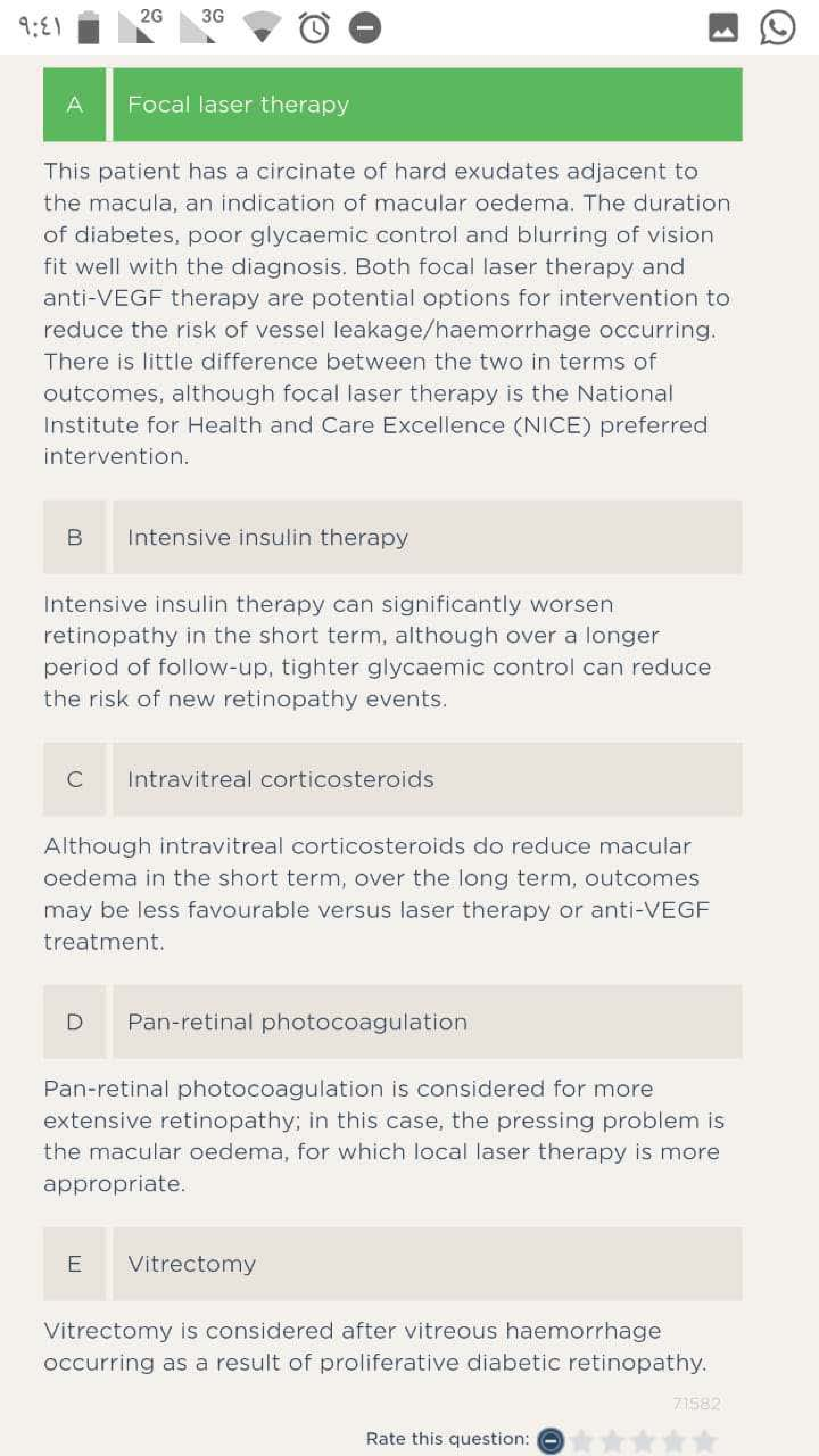
Your answer was correct

A	Focal laser therapy
B	Intensive insulin therapy
C	Intravitreal corticosteroids
D	Pan-retinal photocoagulation
E	Vitrectomy

Explanation



A Focal laser therapy

This patient has a circinate of hard exudates adjacent to the macula, an indication of macular oedema. The duration of diabetes, poor glycaemic control and blurring of vision fit well with the diagnosis. Both focal laser therapy and anti-VEGF therapy are potential options for intervention to reduce the risk of vessel leakage/haemorrhage occurring. There is little difference between the two in terms of outcomes, although focal laser therapy is the National Institute for Health and Care Excellence (NICE) preferred intervention.

B Intensive insulin therapy

Intensive insulin therapy can significantly worsen retinopathy in the short term, although over a longer period of follow-up, tighter glycaemic control can reduce the risk of new retinopathy events.

C Intravitreal corticosteroids

Although intravitreal corticosteroids do reduce macular oedema in the short term, over the long term, outcomes may be less favourable versus laser therapy or anti-VEGF treatment.

D Pan-retinal photocoagulation

Pan-retinal photocoagulation is considered for more extensive retinopathy; in this case, the pressing problem is the macular oedema, for which local laser therapy is more appropriate.

E Vitrectomy

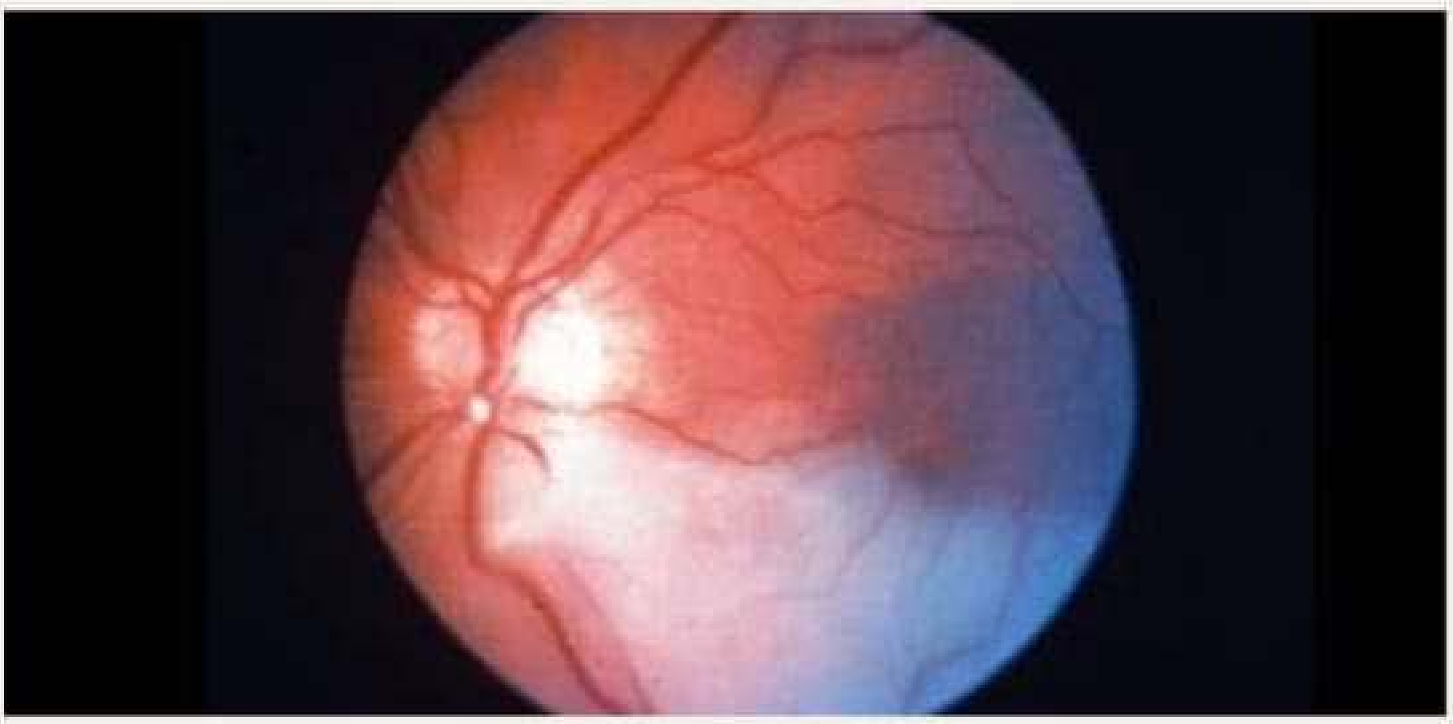
Vitrectomy is considered after vitreous haemorrhage occurring as a result of proliferative diabetic retinopathy.

71582

An 82-year-old man presents to the Emergency Department with sudden loss of vision affecting the upper field of vision of his left eye. He says it came on suddenly and he is now having difficulty perceiving even light and dark in the upper field of vision. He suffered an anterior myocardial infarction some four years ago, and currently takes oral aspirin with a number of antihypertensive agents and a statin.

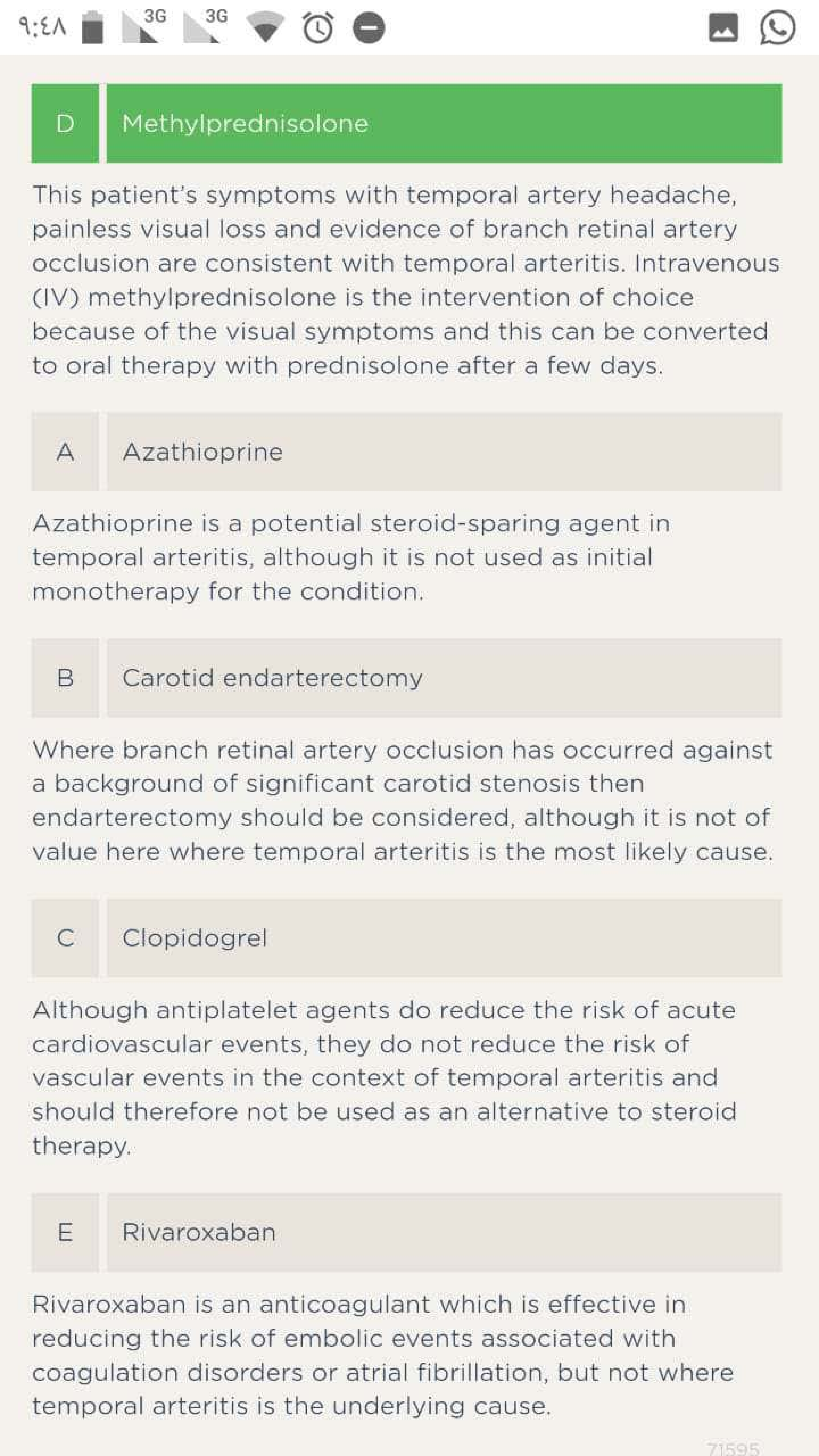
Over the past few months, he has suffered increasingly frequent temporal headaches for which he has self-medicated with paracetamol and ibuprofen. His blood pressure is 163/95 mmHg and his pulse is 85 bpm and regular. He is tender over both temporal arteries.

An image of his eye is shown below.



Which of the following is the most appropriate intervention to prevent further vascular events?

A	Azathioprine
B	Carotid endarterectomy
C	Clopidogrel
D	Methylprednisolone
E	Rivaroxaban



D **Methylprednisolone**

This patient's symptoms with temporal artery headache, painless visual loss and evidence of branch retinal artery occlusion are consistent with temporal arteritis. Intravenous (IV) methylprednisolone is the intervention of choice because of the visual symptoms and this can be converted to oral therapy with prednisolone after a few days.

A Azathioprine

Azathioprine is a potential steroid-sparing agent in temporal arteritis, although it is not used as initial monotherapy for the condition.

B Carotid endarterectomy

Where branch retinal artery occlusion has occurred against a background of significant carotid stenosis then endarterectomy should be considered, although it is not of value here where temporal arteritis is the most likely cause.

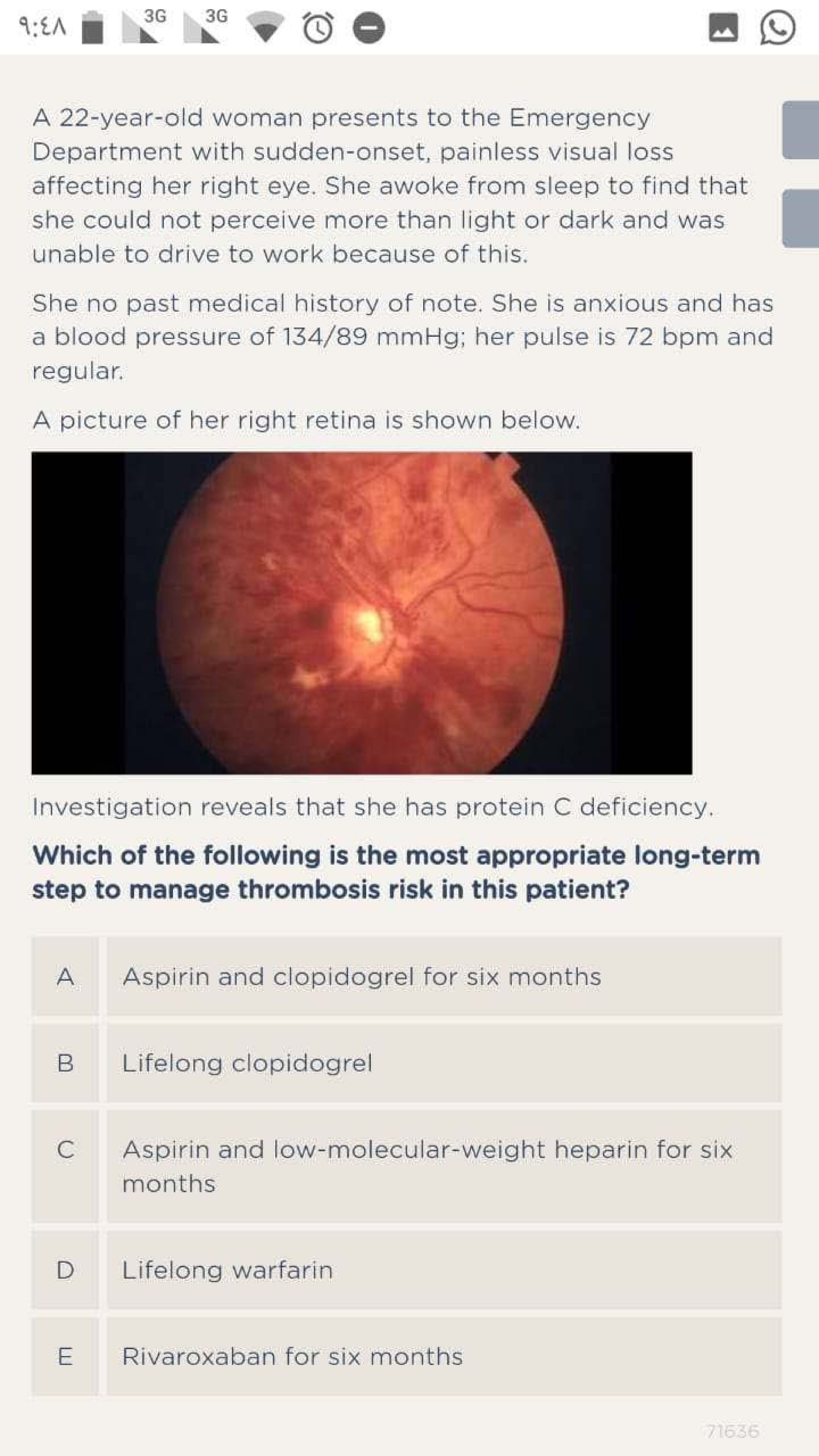
C Clopidogrel

Although antiplatelet agents do reduce the risk of acute cardiovascular events, they do not reduce the risk of vascular events in the context of temporal arteritis and should therefore not be used as an alternative to steroid therapy.

E Rivaroxaban

Rivaroxaban is an anticoagulant which is effective in reducing the risk of embolic events associated with coagulation disorders or atrial fibrillation, but not where temporal arteritis is the underlying cause.

71595



A 22-year-old woman presents to the Emergency Department with sudden-onset, painless visual loss affecting her right eye. She awoke from sleep to find that she could not perceive more than light or dark and was unable to drive to work because of this.

She no past medical history of note. She is anxious and has a blood pressure of 134/89 mmHg; her pulse is 72 bpm and regular.

A picture of her right retina is shown below.

Investigation reveals that she has protein C deficiency.

Which of the following is the most appropriate long-term step to manage thrombosis risk in this patient?

A	Aspirin and clopidogrel for six months
B	Lifelong clopidogrel
C	Aspirin and low-molecular-weight heparin for six months
D	Lifelong warfarin
E	Rivaroxaban for six months

71636

A 22-year-old woman presents to the Emergency Department with sudden-onset, painless visual loss affecting her right eye. She awoke from sleep to find that she could not perceive more than light or dark and was unable to drive to work because of this.

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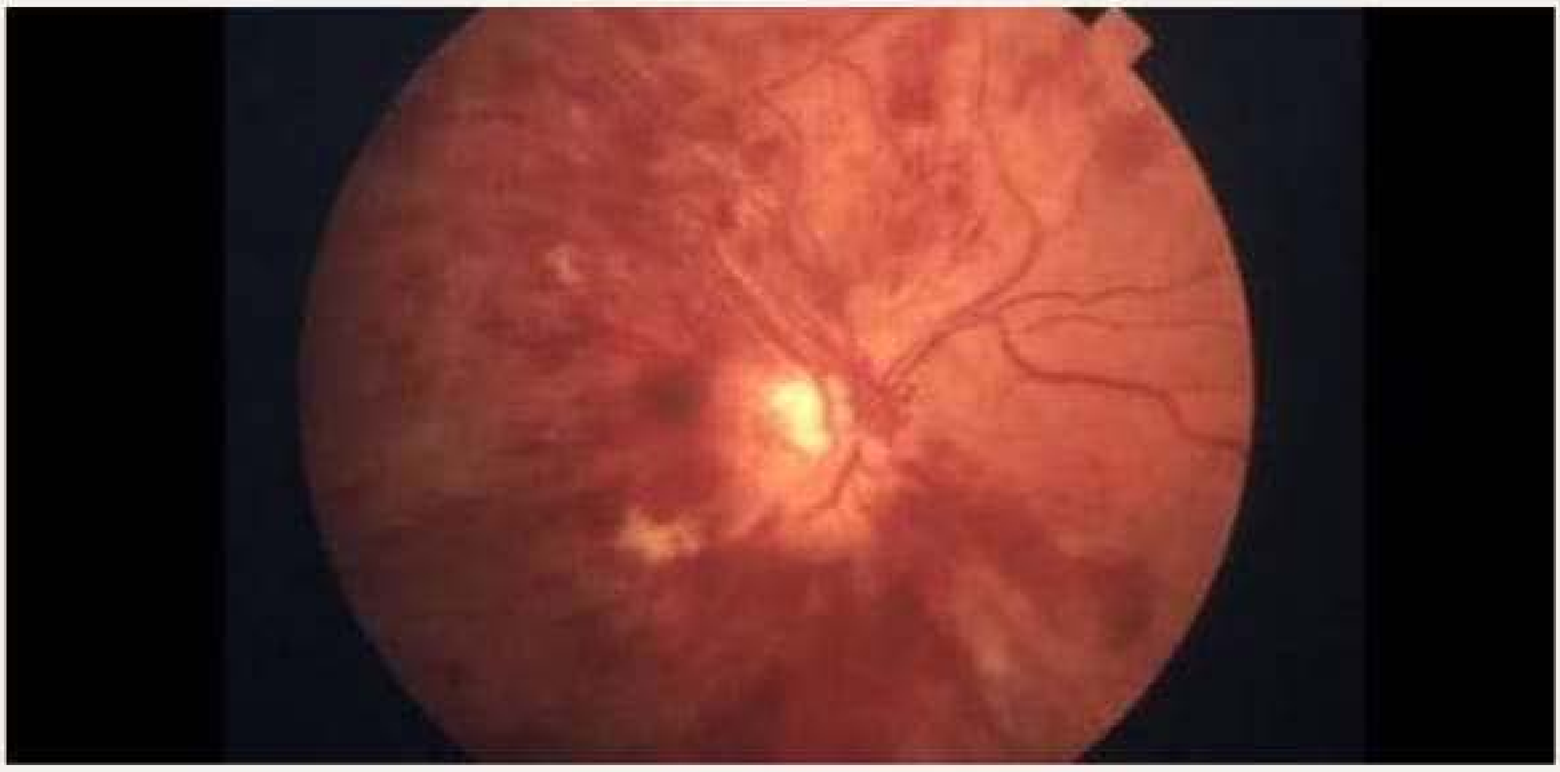

Investigation reveals that she has protein C deficiency.

Which of the following is the most appropriate long-term step to manage thrombosis risk in this patient?

Your answer was incorrect

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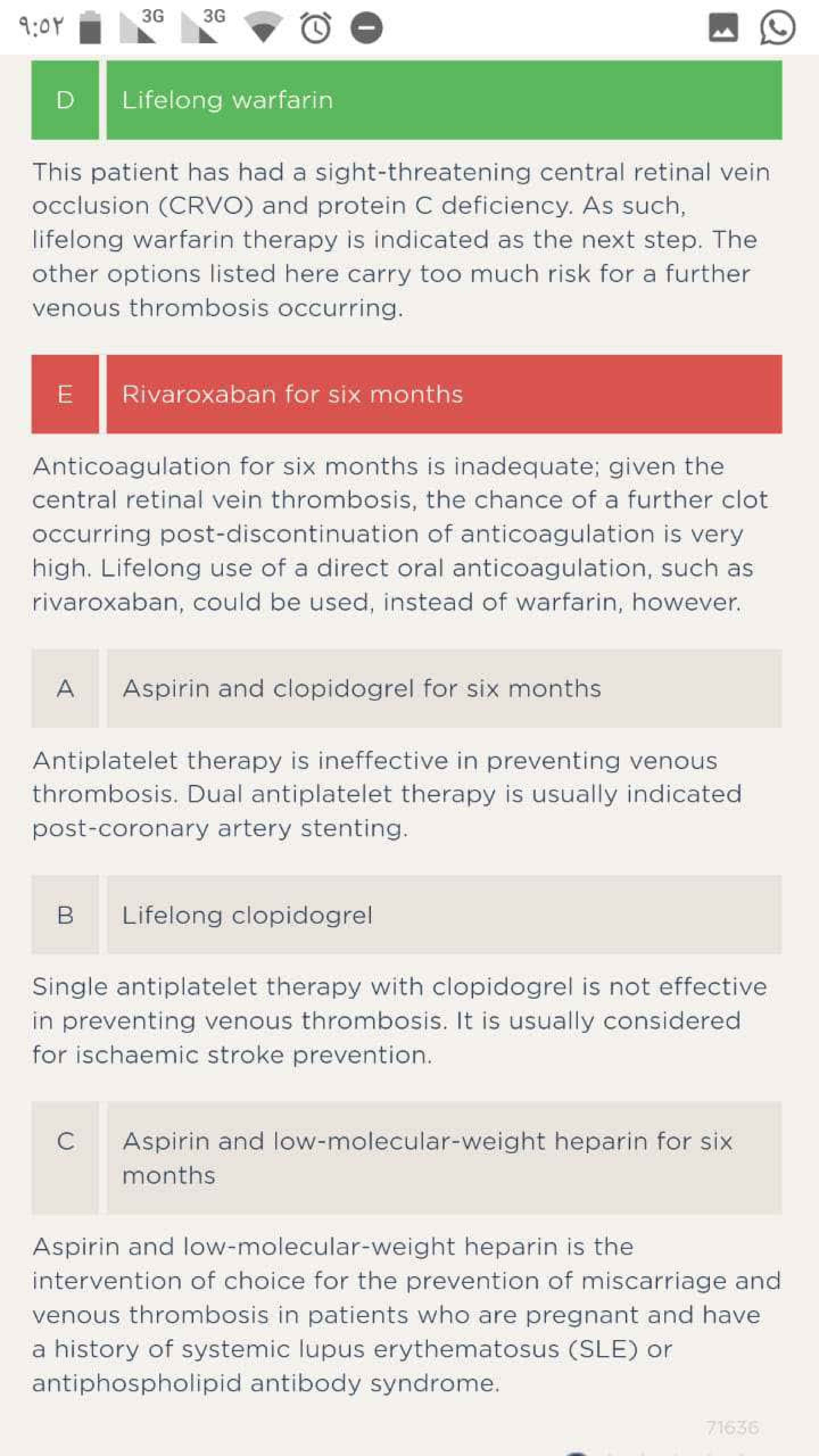
B	Lifelong clopidogrel
C	Aspirin and low-molecular-weight heparin for six months



D Lifelong warfarin

This patient has had a sight-threatening central retinal vein occlusion (CRVO) and protein C deficiency. As such, lifelong warfarin therapy is indicated as the next step. The other options listed here carry too much risk for a further venous thrombosis occurring.

E Rivaroxaban for six months

Anticoagulation for six months is inadequate; given the central retinal vein thrombosis, the chance of a further clot occurring post-discontinuation of anticoagulation is very high. Lifelong use of a direct oral anticoagulation, such as rivaroxaban, could be used, instead of warfarin, however.

A Aspirin and clopidogrel for six months

Antiplatelet therapy is ineffective in preventing venous thrombosis. Dual antiplatelet therapy is usually indicated post-coronary artery stenting.

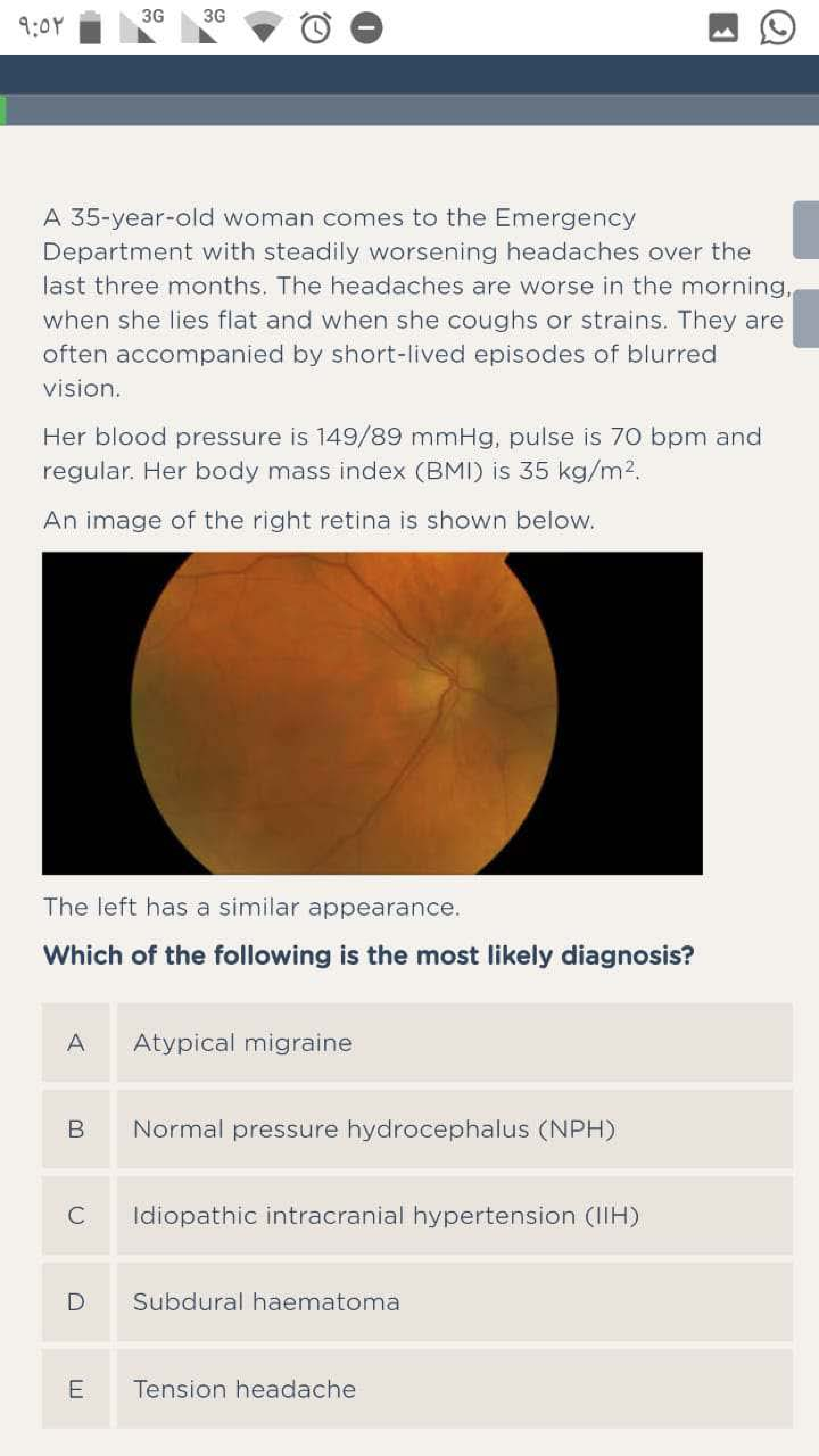
B Lifelong clopidogrel

Single antiplatelet therapy with clopidogrel is not effective in preventing venous thrombosis. It is usually considered for ischaemic stroke prevention.

C Aspirin and low-molecular-weight heparin for six months

Aspirin and low-molecular-weight heparin is the intervention of choice for the prevention of miscarriage and venous thrombosis in patients who are pregnant and have a history of systemic lupus erythematosus (SLE) or antiphospholipid antibody syndrome.

71636



A 35-year-old woman comes to the Emergency Department with steadily worsening headaches over the last three months. The headaches are worse in the morning, when she lies flat and when she coughs or strains. They are often accompanied by short-lived episodes of blurred vision.

Her blood pressure is 149/89 mmHg, pulse is 70 bpm and regular. Her body mass index (BMI) is 35 kg/m^2.

An image of the right retina is shown below.

The left has a similar appearance.

Which of the following is the most likely diagnosis?

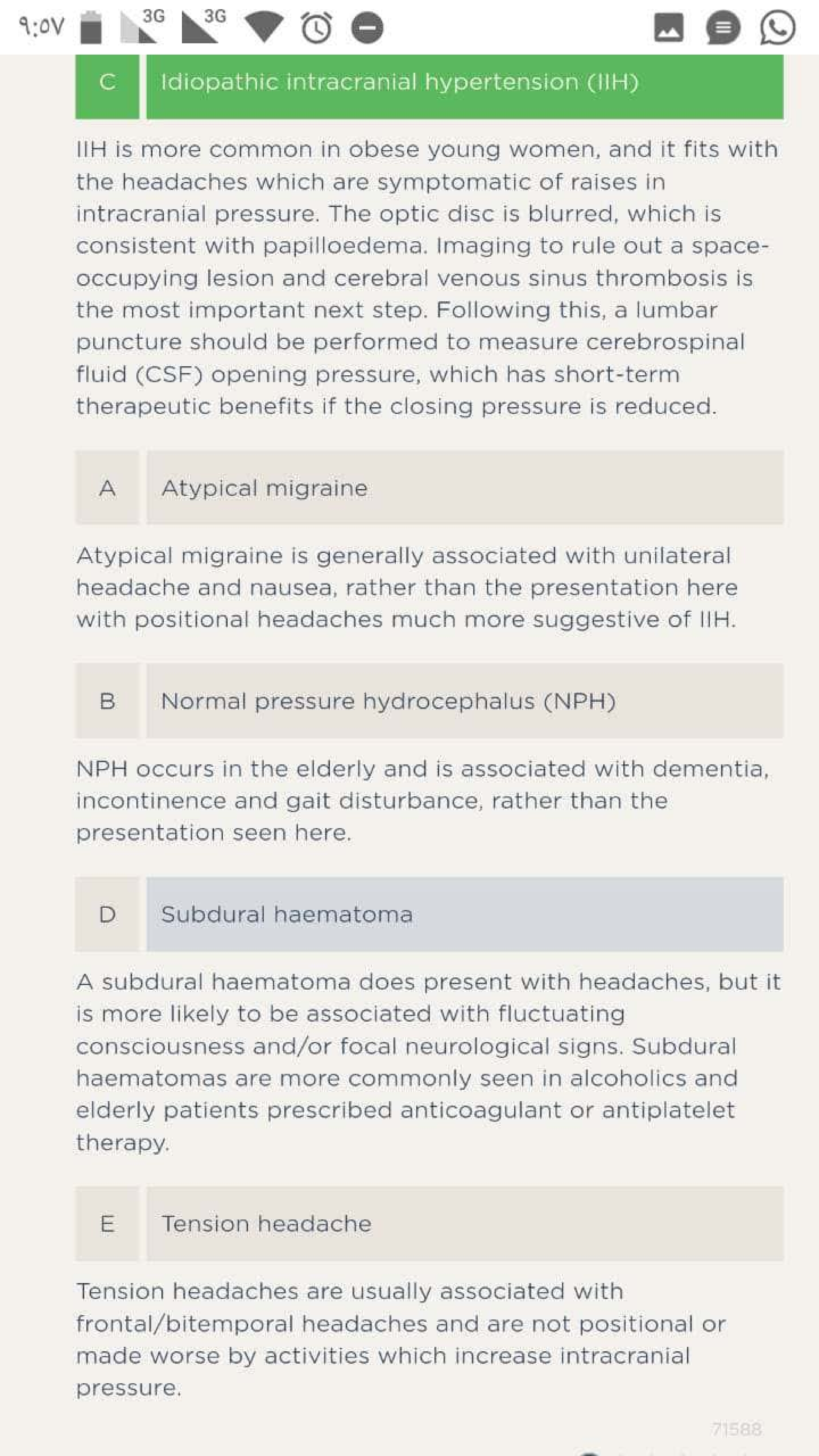
A Atypical migraine

B Normal pressure hydrocephalus (NPH)

C Idiopathic intracranial hypertension (IIH)

D Subdural haematoma

E Tension headache



C Idiopathic intracranial hypertension (IIH)

IIH is more common in obese young women, and it fits with the headaches which are symptomatic of raises in intracranial pressure. The optic disc is blurred, which is consistent with papilloedema. Imaging to rule out a space-occupying lesion and cerebral venous sinus thrombosis is the most important next step. Following this, a lumbar puncture should be performed to measure cerebrospinal fluid (CSF) opening pressure, which has short-term therapeutic benefits if the closing pressure is reduced.

A Atypical migraine

Atypical migraine is generally associated with unilateral headache and nausea, rather than the presentation here with positional headaches much more suggestive of IIH.

B Normal pressure hydrocephalus (NPH)

NPH occurs in the elderly and is associated with dementia, incontinence and gait disturbance, rather than the presentation seen here.

D Subdural haematoma

A subdural haematoma does present with headaches, but it is more likely to be associated with fluctuating consciousness and/or focal neurological signs. Subdural haematomas are more commonly seen in alcoholics and elderly patients prescribed anticoagulant or antiplatelet therapy.

E Tension headache

Tension headaches are usually associated with frontal/bitemporal headaches and are not positional or made worse by activities which increase intracranial pressure.

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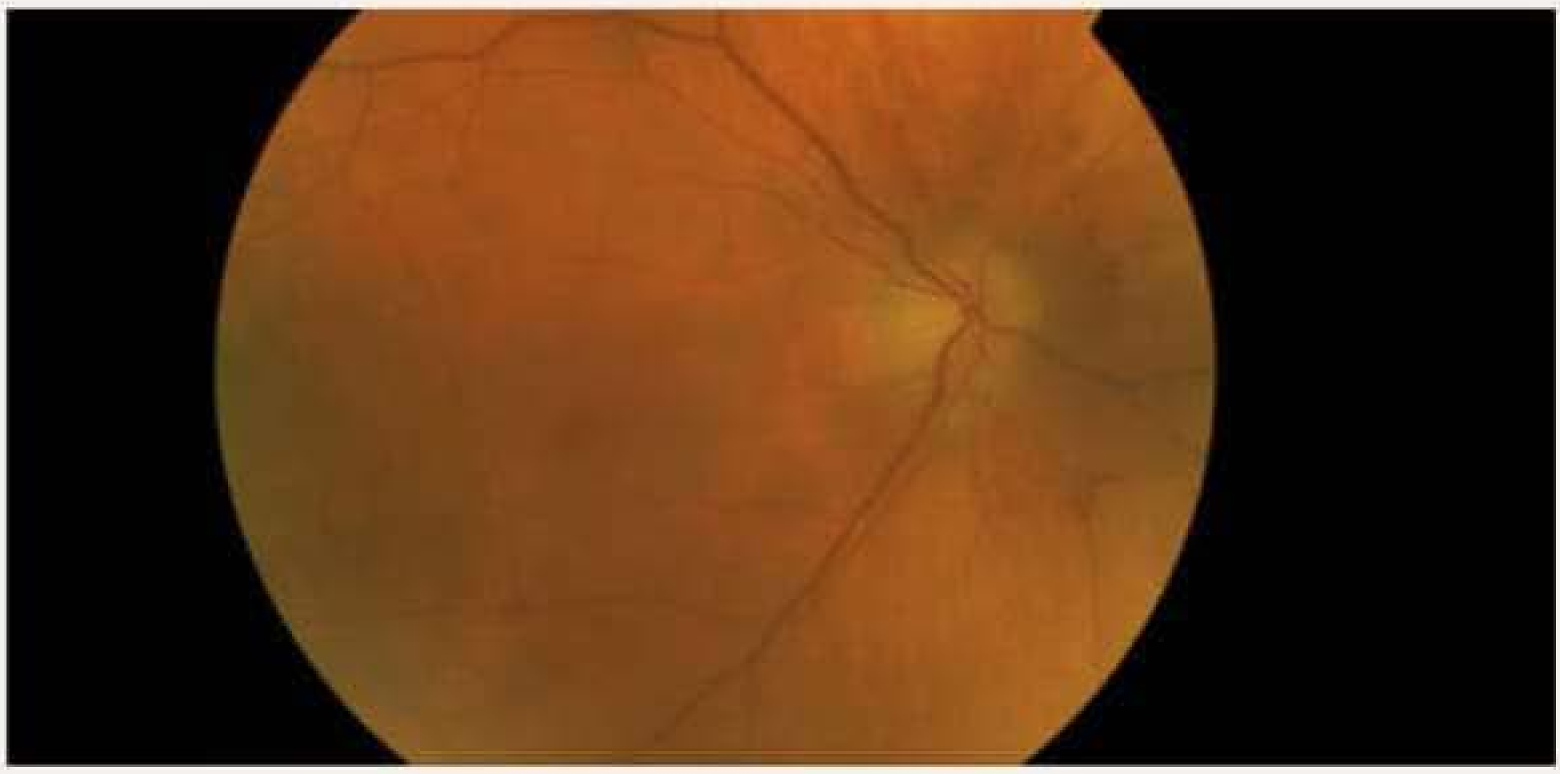


The left has a similar appearance.

Which of the following is the most likely diagnosis?

Your answer was correct

A Atypical migraine

B Normal pressure hydrocephalus (NPH)

C Idiopathic intracranial hypertension (IIH)

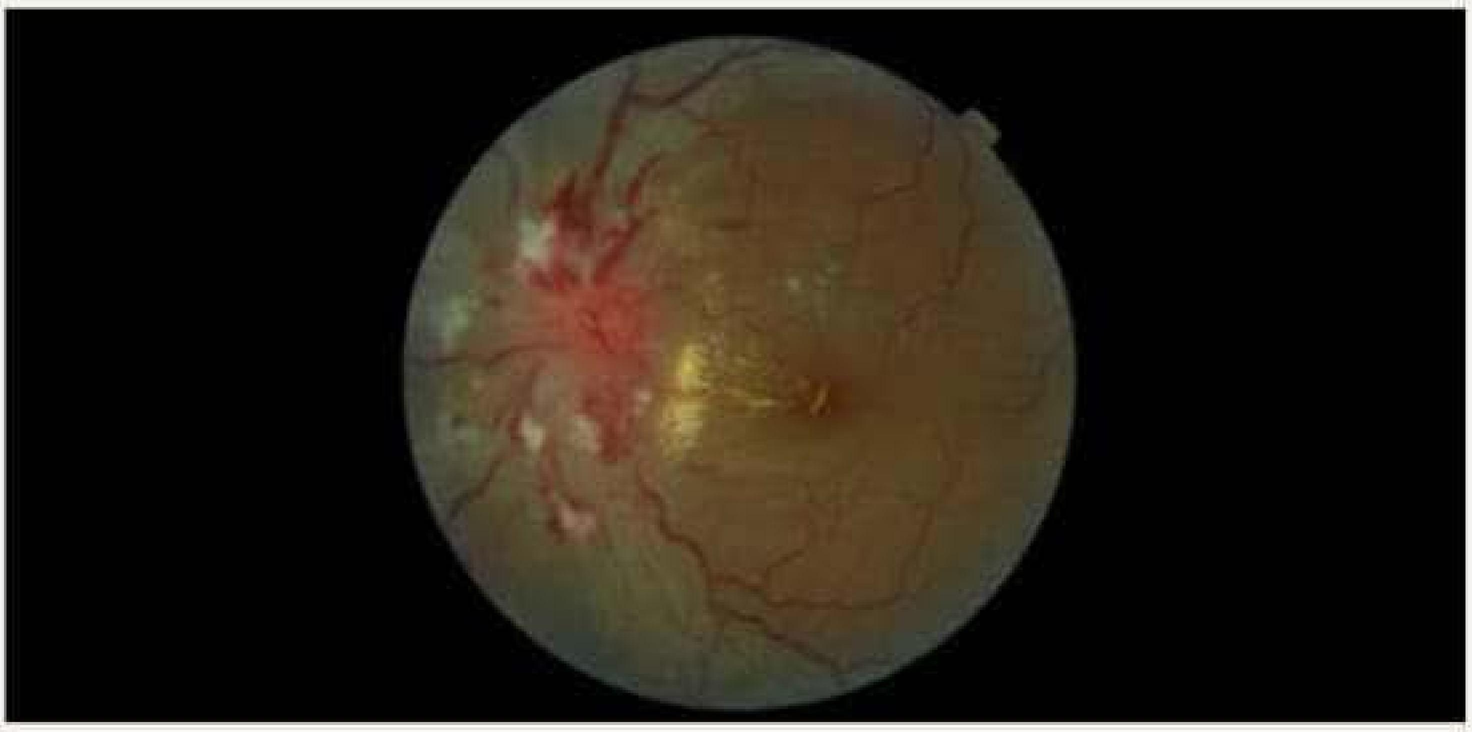
D Subdural haematoma

E Tension headache

A 38-year-old city worker presents to the Emergency Department with a severe frontal headache, nausea and vomiting which has built up over the past week. On further questioning, he admits to worsening headaches over the past two to three months.

On examination, his blood pressure is 210/100 mmHg, pulse is 85 bpm and regular. His body mass index (BMI) is 23 kg/m^2 and there are no masses on palpation of the abdomen. His creatinine is elevated at 189 µmol/l.

A retinal photograph is shown below.



Which of the following is the most appropriate intervention?

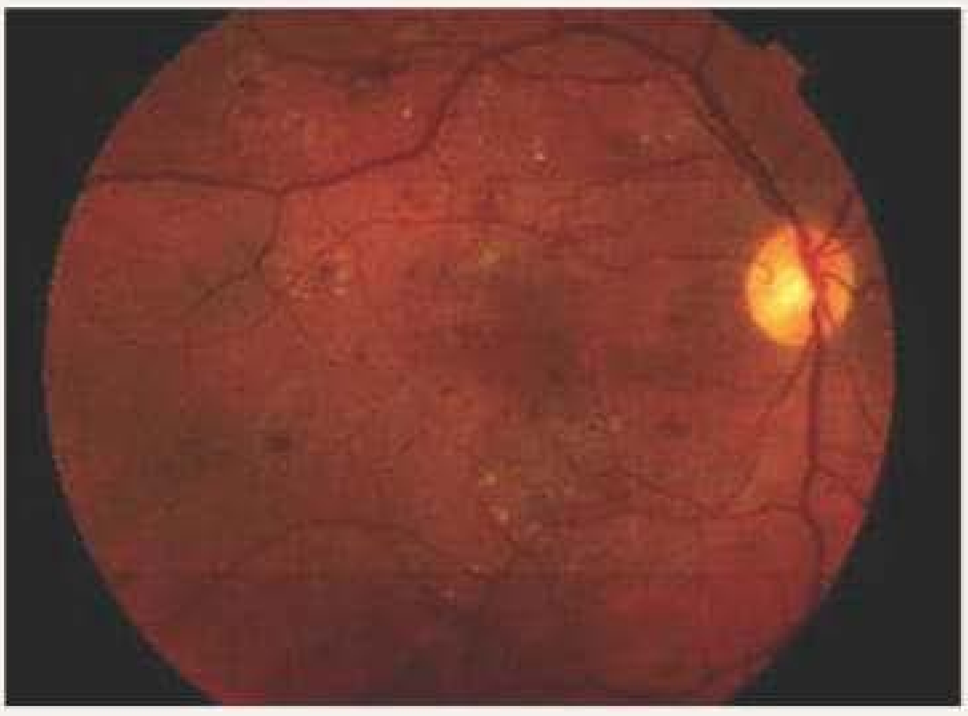
A	Intravenous (IV) sodium nitroprusside
B	Oral amlodipine
C	Oral bendroflumethiazide
D	Oral ramipril
E	Sublingual nifedipine

Calculato

Normal Va

A 65-year-old overweight Asian woman was referred to Ophthalmology Outpatients with general malaise and a gradual reduction in vision of three months' duration, affecting both eyes.

Aided Snellen visual acuity was recorded as 6/18 right eye, 6/12 left eye, both eyes improving to 6/9 with a pinhole. Dilated examination revealed bilateral, moderate nuclear sclerosis, and widespread retinal changes as shown below.



Her lipids were checked by her general practitioner (GP) four months before:

Cholesterol	6 mmol/l
HDL	0.79 mmol/l
LDL	4.0 mmol/l
Fasting triglycerides	4.6 mmol/l

Which of the following is the most likely underlying diagnosis?

A	Ankylosing spondylitis
B	Diabetes mellitus
C	Hyperlipidaemia
D	Multiple sclerosis
E	Sarcoidosis

70724

Submit

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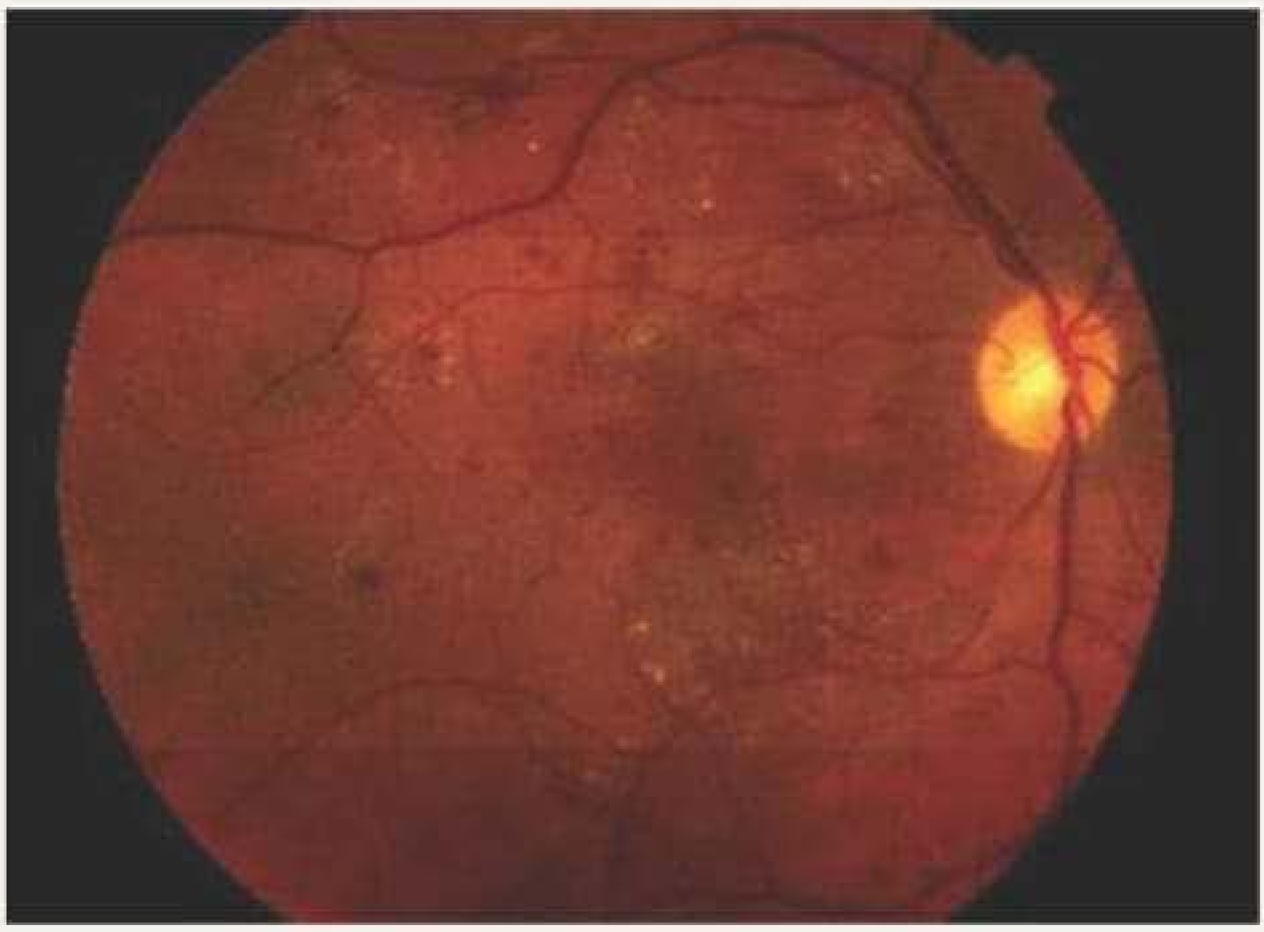

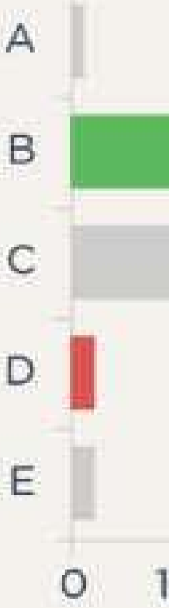

Respo
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Fasting triglycerides	4.6 mmol/l

Which of the following is the most likely underlying diagnosis?

Your answer was incorrect

A	Ankylosing spondylitis
B	Diabetes mellitus

B Diabetes mellitus

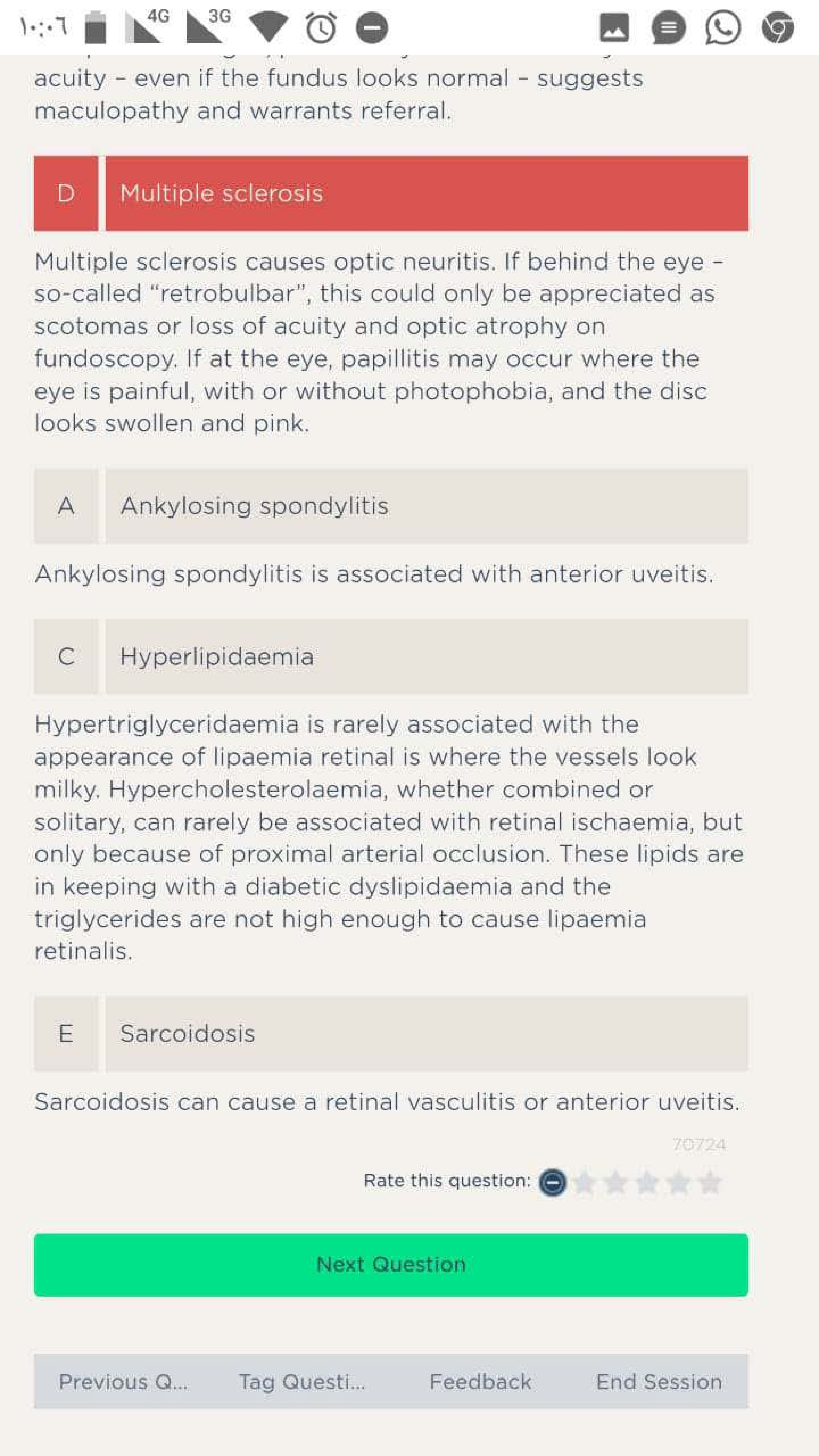
The slide shows a diabetic pre-proliferative diabetic retinopathy. There are extensive dot and blot haemorrhages and hard exudates (including a circinate exudates at 11 o'clock to the macula). Cotton-wool spots are seen superior to the macula and superotemporal vascular arcade. There is a large blot haemorrhage superiorly, the arteries are tortuous and fine, and the veins are irregular with beading.

None of this would affect acuity per se – in this case, as evidenced by the satisfactory acuity with pinhole correction, a loss of acuity would imply maculopathy.

A refractive error, or in this case lens opacity, is reducing visual acuity, which subsequently improves with pinhole correction. This is difficult to appreciate from direct fundoscopy but one can sometimes get a sense that the physiological foveal pit reflex is lost, and the macula appears boggy and oedematous.

Fluorescein angiography can demonstrate extensive capillary leak at the macula and show the true extent of the vascular abnormalities, including intra retinal micro aneurysms (another pre-proliferative feature). Retinal imaging with optical coherence tomography (OCT) allows precise measurement of macular oedema, if present. Direct fundoscopy is not always entirely satisfactory at detecting retinopathy. Fluorescein angiography is the gold standard.

Retinal photography should be performed for screening, and in the UK this is undertaken by opticians and optometrists. In this case, however, one should pick up the evident disease. The proximity of red disease (dots and blots) to the macula is not worrying, and can be followed up, but hard exudates (lipid-laden macrophages) and cotton-wool spots (retinal ischaemia – which stimulates new vessel formation) near the macula warrant a referral to an ophthalmologist, particularly if extensive. Any loss of acuity – even if the fundus looks normal – suggests maculopathy and warrants referral.



acuity – even if the fundus looks normal – suggests maculopathy and warrants referral.

D Multiple sclerosis

Multiple sclerosis causes optic neuritis. If behind the eye – so-called "retrobulbar", this could only be appreciated as scotomas or loss of acuity and optic atrophy on fundoscopy. If at the eye, papillitis may occur where the eye is painful, with or without photophobia, and the disc looks swollen and pink.

A Ankylosing spondylitis

Ankylosing spondylitis is associated with anterior uveitis.

C Hyperlipidaemia

Hypertriglyceridaemia is rarely associated with the appearance of lipaemia retinal is where the vessels look milky. Hypercholesterolaemia, whether combined or solitary, can rarely be associated with retinal ischaemia, but only because of proximal arterial occlusion. These lipids are in keeping with a diabetic dyslipidaemia and the triglycerides are not high enough to cause lipaemia retinalis.

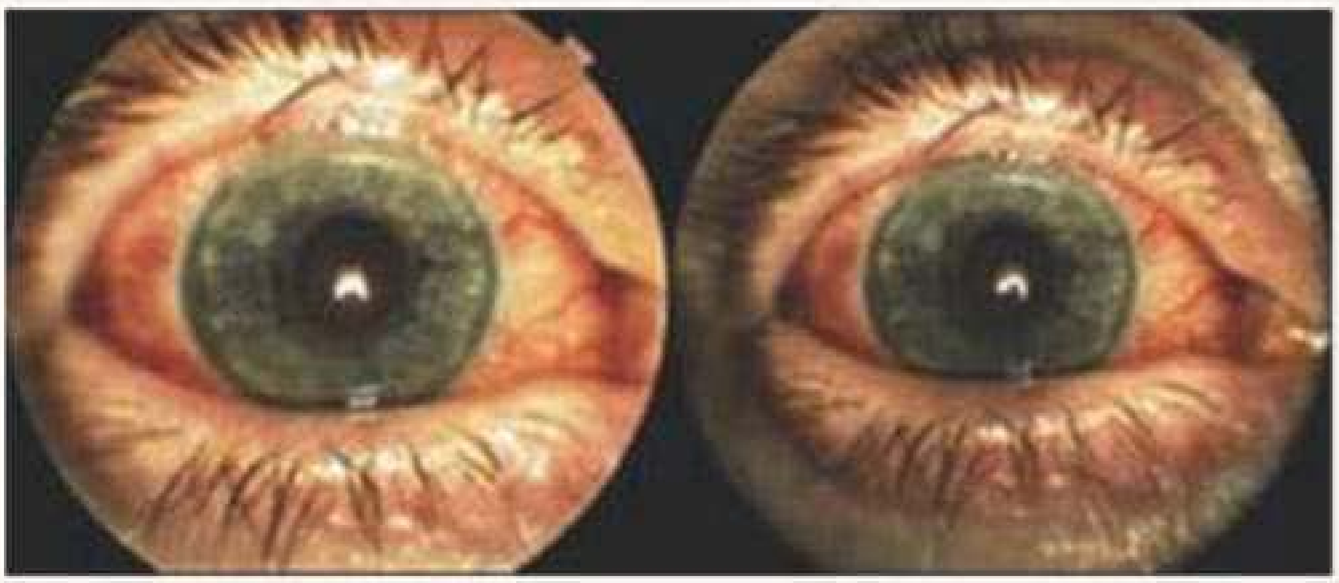
E Sarcoidosis

Sarcoidosis can cause a retinal vasculitis or anterior uveitis.

70724

The surgical registrar calls you at 2300 h to see a 72-year-old Chinese woman. She is under the general surgeons, being investigated for possible bowel obstruction because of severe nausea and vomiting. She is vomiting every half-hour and complains of progressive visual loss in the right eye during the course of the evening as well as redness and pain. She noticed that for the preceding few days she has seen halos round street lamps. She does not smoke, only drinks rarely and lives on her own except that recently she has purchased a cat. You do not have a Snellen or a Jaeger chart but on using a magazine, her acuity is better in the left than in the right eye.

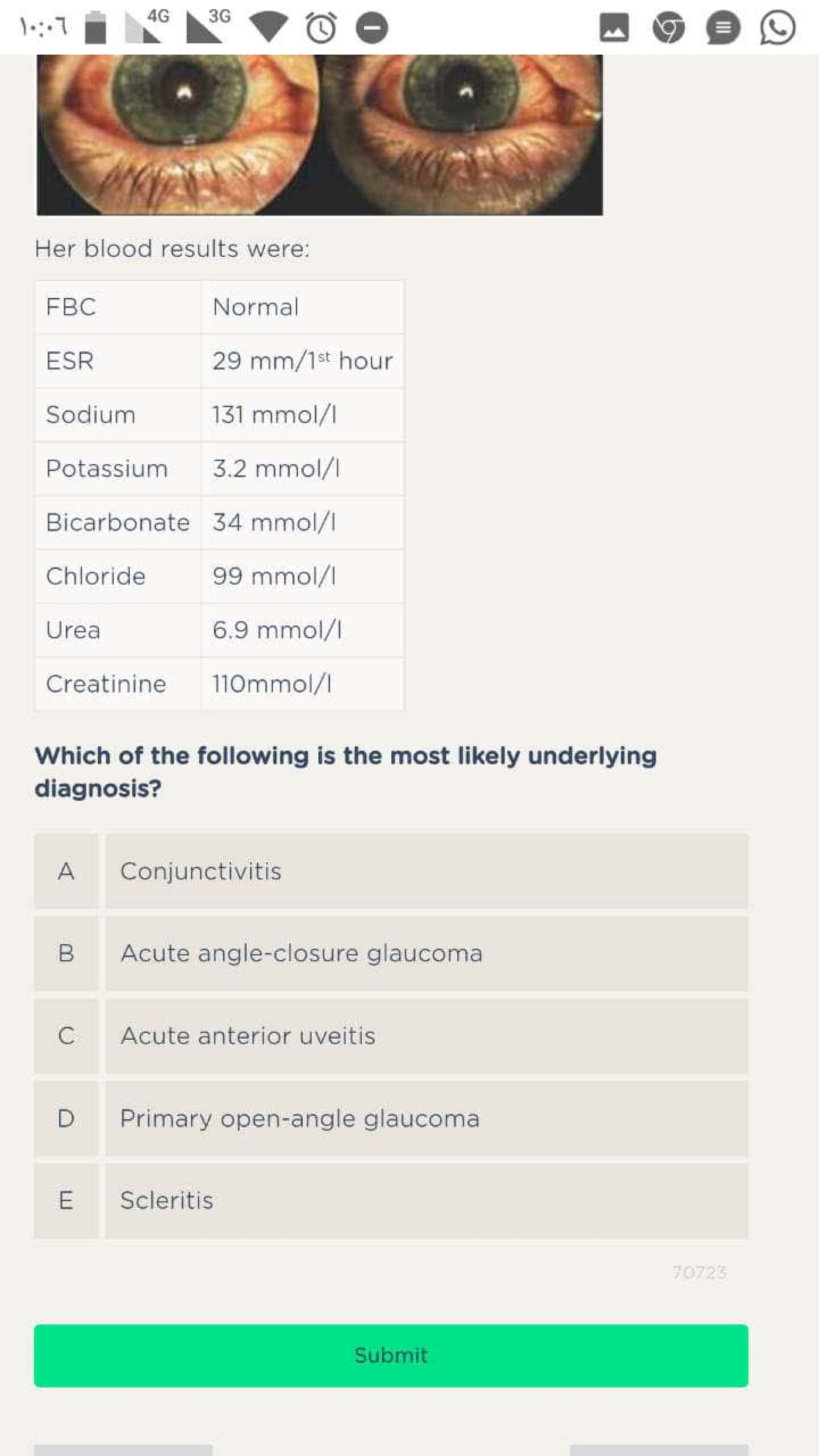
On inspection there is a shallow anterior chamber, a semi-dilated, fixed pupil and the appearance is shown below. There is a little clear discharge.



Her blood results were:

FBC	Normal
ESR	29 mm/1st hour
Sodium	131 mmol/l
Potassium	3.2 mmol/l
Bicarbonate	34 mmol/l
Chloride	99 mmol/l
Urea	6.9 mmol/l
Creatinine	110mmol/l

Which of the following is the most likely underlying diagnosis?



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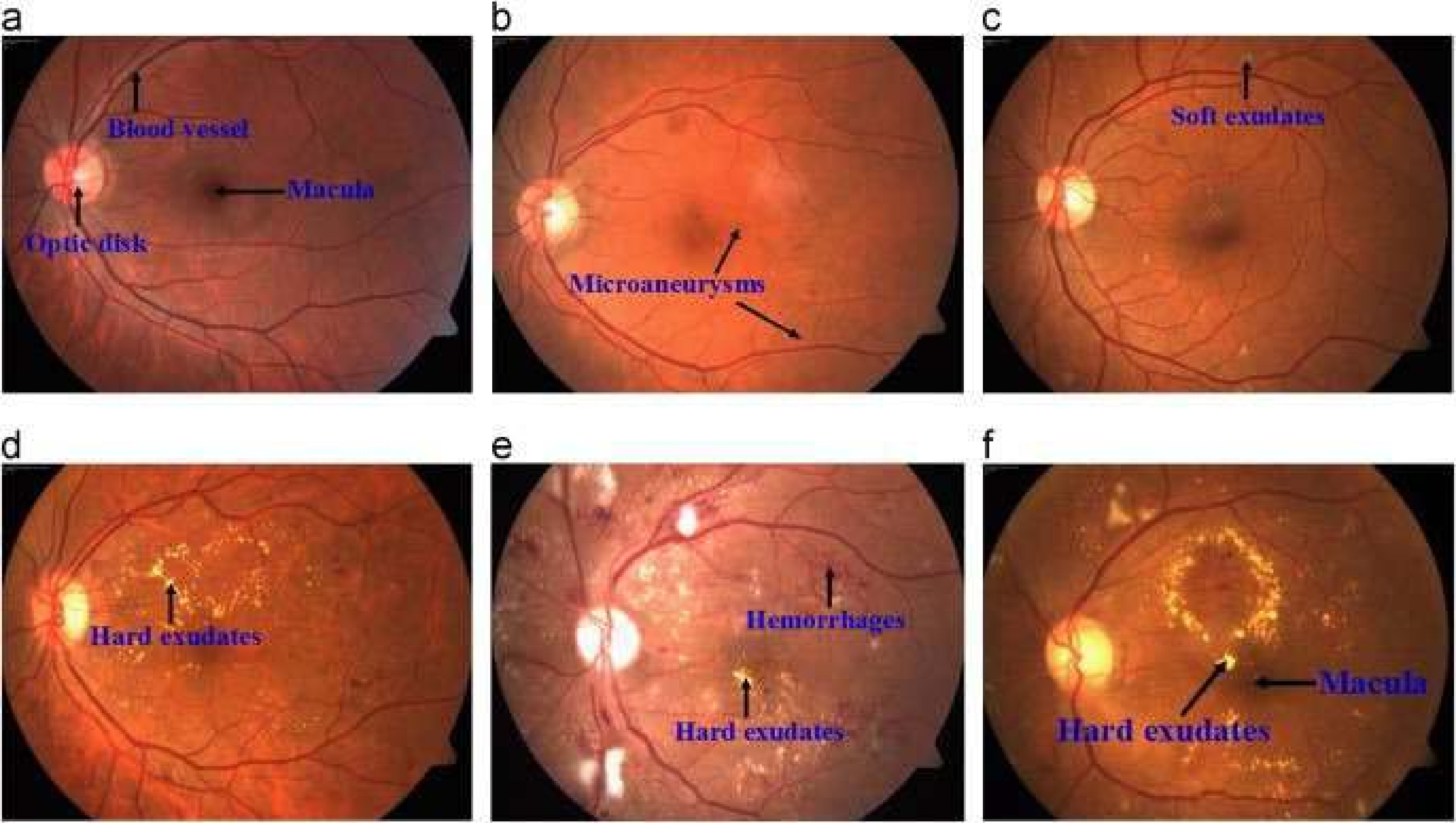
Creatinine	110mmol/l

Which of the following is the most likely underlying diagnosis?

A	Conjunctivitis
B	Acute angle-closure glaucoma
C	Acute anterior uveitis
D	Primary open-angle glaucoma
E	Scleritis

70723


a
Blood vessel
Macula
Optic disk
b
Microaneurysms
c
Soft exudates
d
Hard exudates
e
Hemorrhages
Hard exudates
f
Macula
Hard exudates

being investigated for possible bowel obstruction because of severe nausea and vomiting. She is vomiting every half-hour and complains of progressive visual loss in the right eye during the course of the evening as well as redness and pain. She noticed that for the preceding few days she has seen halos round street lamps. She does not smoke, only drinks rarely and lives on her own except that recently she has purchased a cat. You do not have a Snellen or a Jaeger chart but on using a magazine, her acuity is better in the left than in the right eye.

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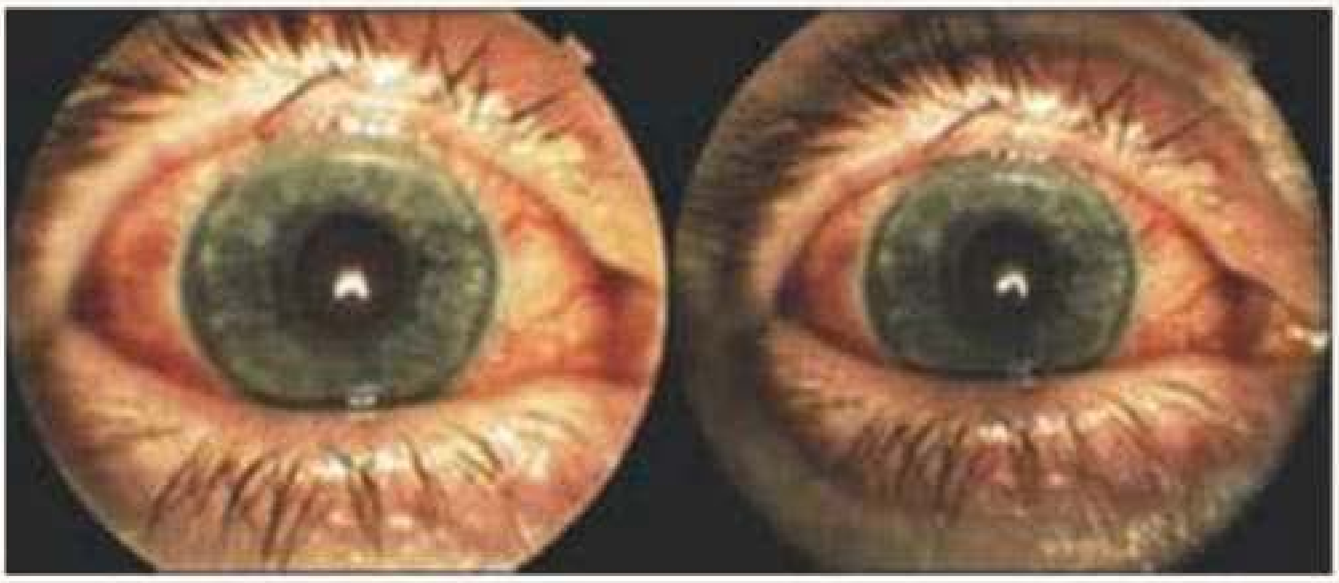

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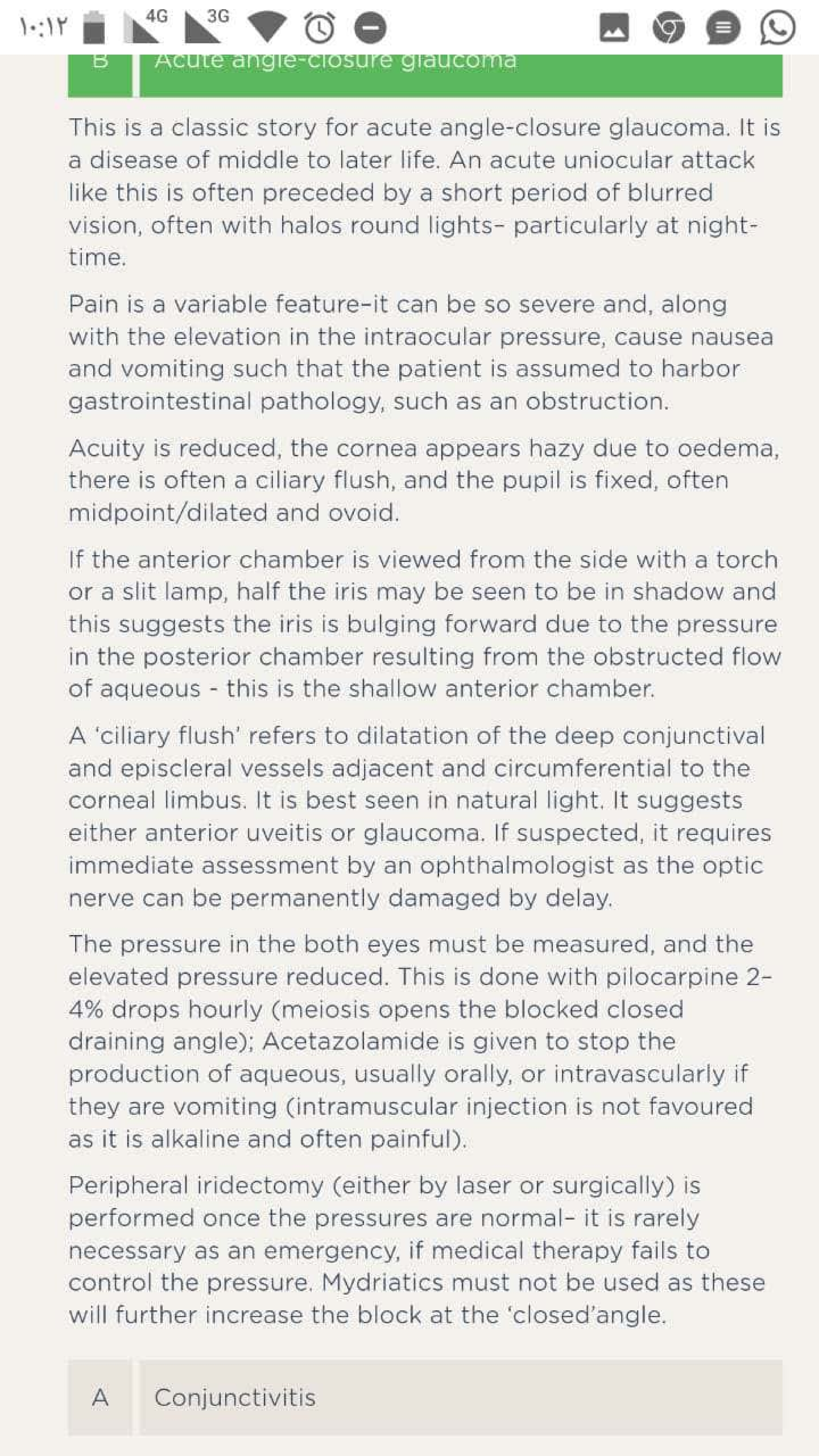


B Acute angle-closure glaucoma

This is a classic story for acute angle-closure glaucoma. It is a disease of middle to later life. An acute uniocular attack like this is often preceded by a short period of blurred vision, often with halos round lights– particularly at night-time.

Pain is a variable feature–it can be so severe and, along with the elevation in the intraocular pressure, cause nausea and vomiting such that the patient is assumed to harbor gastrointestinal pathology, such as an obstruction.

Acuity is reduced, the cornea appears hazy due to oedema, there is often a ciliary flush, and the pupil is fixed, often midpoint/dilated and ovoid.

If the anterior chamber is viewed from the side with a torch or a slit lamp, half the iris may be seen to be in shadow and this suggests the iris is bulging forward due to the pressure in the posterior chamber resulting from the obstructed flow of aqueous - this is the shallow anterior chamber.

A 'ciliary flush' refers to dilatation of the deep conjunctival and episcleral vessels adjacent and circumferential to the corneal limbus. It is best seen in natural light. It suggests either anterior uveitis or glaucoma. If suspected, it requires immediate assessment by an ophthalmologist as the optic nerve can be permanently damaged by delay.

The pressure in the both eyes must be measured, and the elevated pressure reduced. This is done with pilocarpine 2–4% drops hourly (meiosis opens the blocked closed draining angle); Acetazolamide is given to stop the production of aqueous, usually orally, or intravascularly if they are vomiting (intramuscular injection is not favoured as it is alkaline and often painful).

Peripheral iridectomy (either by laser or surgically) is performed once the pressures are normal– it is rarely necessary as an emergency, if medical therapy fails to control the pressure. Mydriatics must not be used as these will further increase the block at the 'closed'angle.

A Conjunctivitis

A Conjunctivitis

Conjunctivitis does not cause perilimbic (within 3mm of the cornea) dilatation.It is usually itchy and is the only cause of a red eye that is so. It is not truly painful and neither vision, reflexes or movements are affected.

C Acute anterior uveitis

Anterior uveitis tends to cause a deep boring pain, of acute onset, photophobia (because of iris spasm), blurred vision due to precipitates in the aqueous, lacrimation, circumcorneal redness (ciliary flush), and a small pupil (again because of iris spasm) that may in time become irregular or dilate irregularly due to adhesion formation. Pus may be seen in the anterior chamber (hypopyon) with a slit lamp. It tends to affect young or middle-aged patients, and is associated with arthritites, such as Still's disease and ankylosing spondylitis.

D Primary open-angle glaucoma

Primary open-angle glaucoma is a chronic disease, which is usually asymptomatic. It is typically associated with a triad of:
1) raised intraocular pressure,
2) pathological changes in the optic disc,
3) visual field defects.

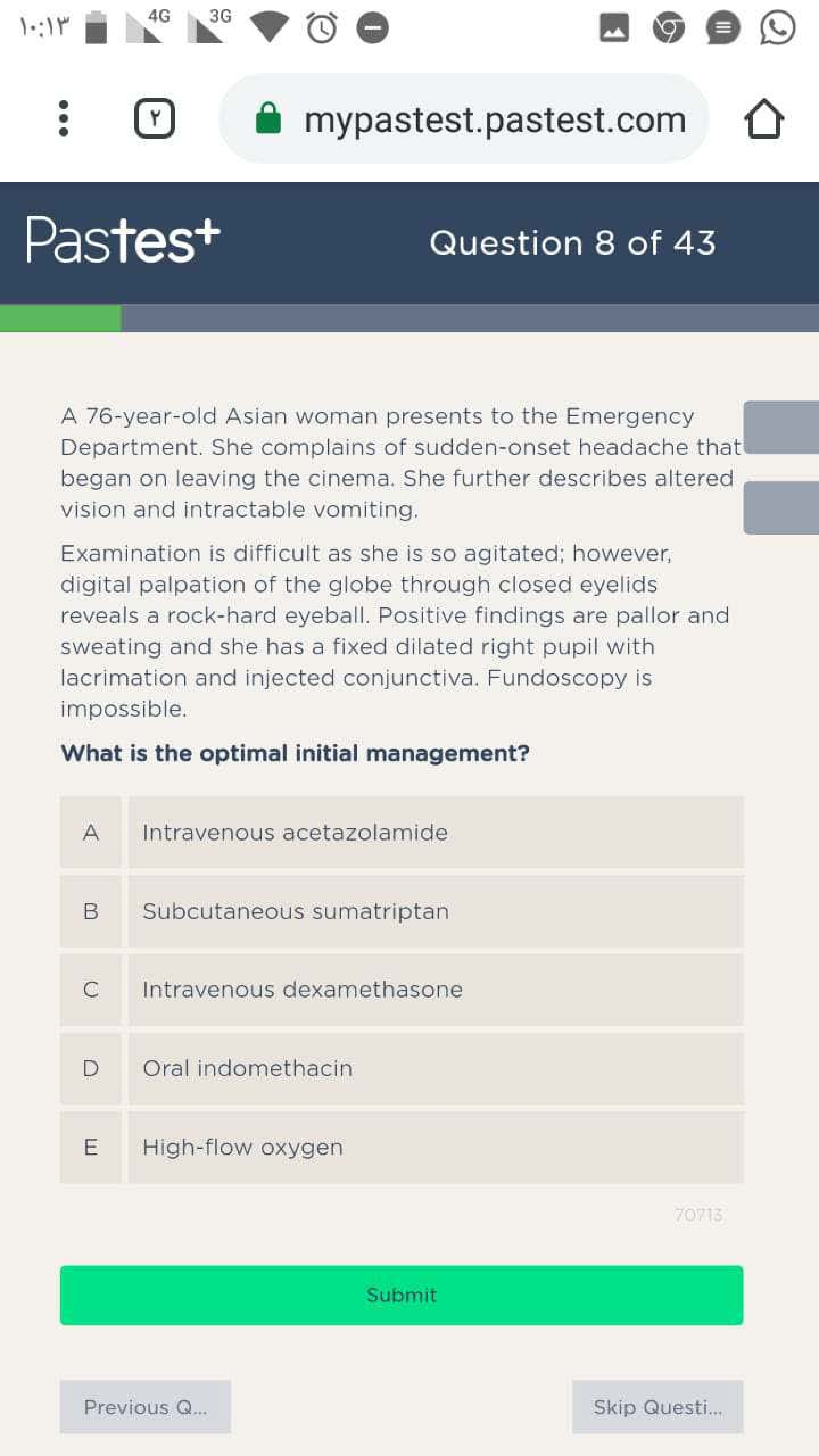
The anterior chamber of the eye is deep, with open-angles, and normal pupil reflexes.

E Scleritis

Scleritis is inflammation of the sclera of the white, leading to a constant, deep, boring pain, which can often wake patients at night. The eye may be very tender to touch. It may be associated with focal or diffuse erythema of the sclera. It is commonly associated with underlying connectivetissue diseases (~50% of cases). In contrast to acute angle-closure glaucoma, the anterior chamber is typically deep and the pupil reflexes are typically normal.

70723

Rate this question:



A 76-year-old Asian woman presents to the Emergency Department. She complains of sudden-onset headache that began on leaving the cinema. She further describes altered vision and intractable vomiting.

Examination is difficult as she is so agitated; however, digital palpation of the globe through closed eyelids reveals a rock-hard eyeball. Positive findings are pallor and sweating and she has a fixed dilated right pupil with lacrimation and injected conjunctiva. Fundoscopy is impossible.

What is the optimal initial management?

A Intravenous acetazolamide

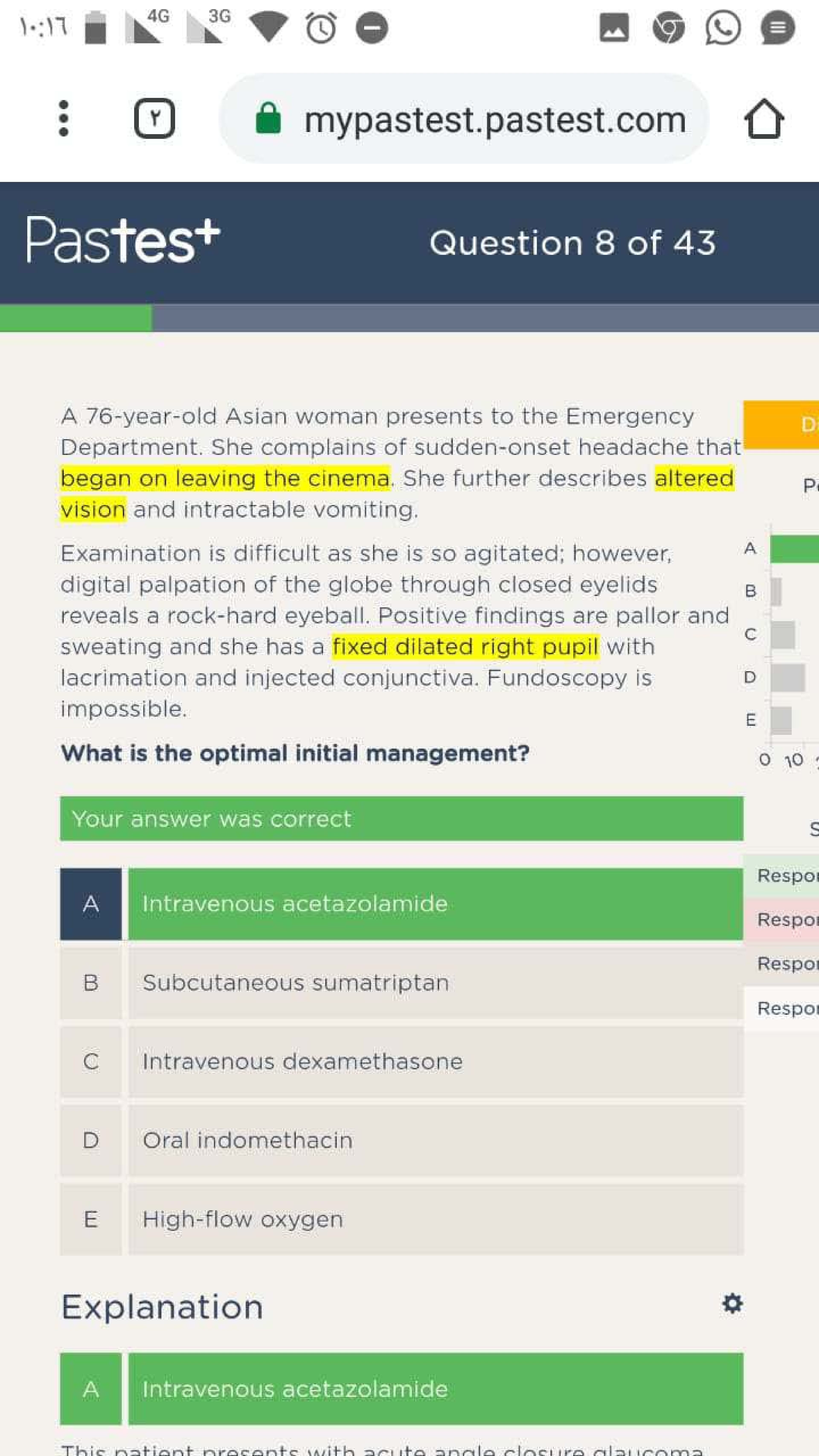
B Subcutaneous sumatriptan

C Intravenous dexamethasone

D Oral indomethacin

E High-flow oxygen

70713



Question 8 of 43

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What is the optimal initial management?

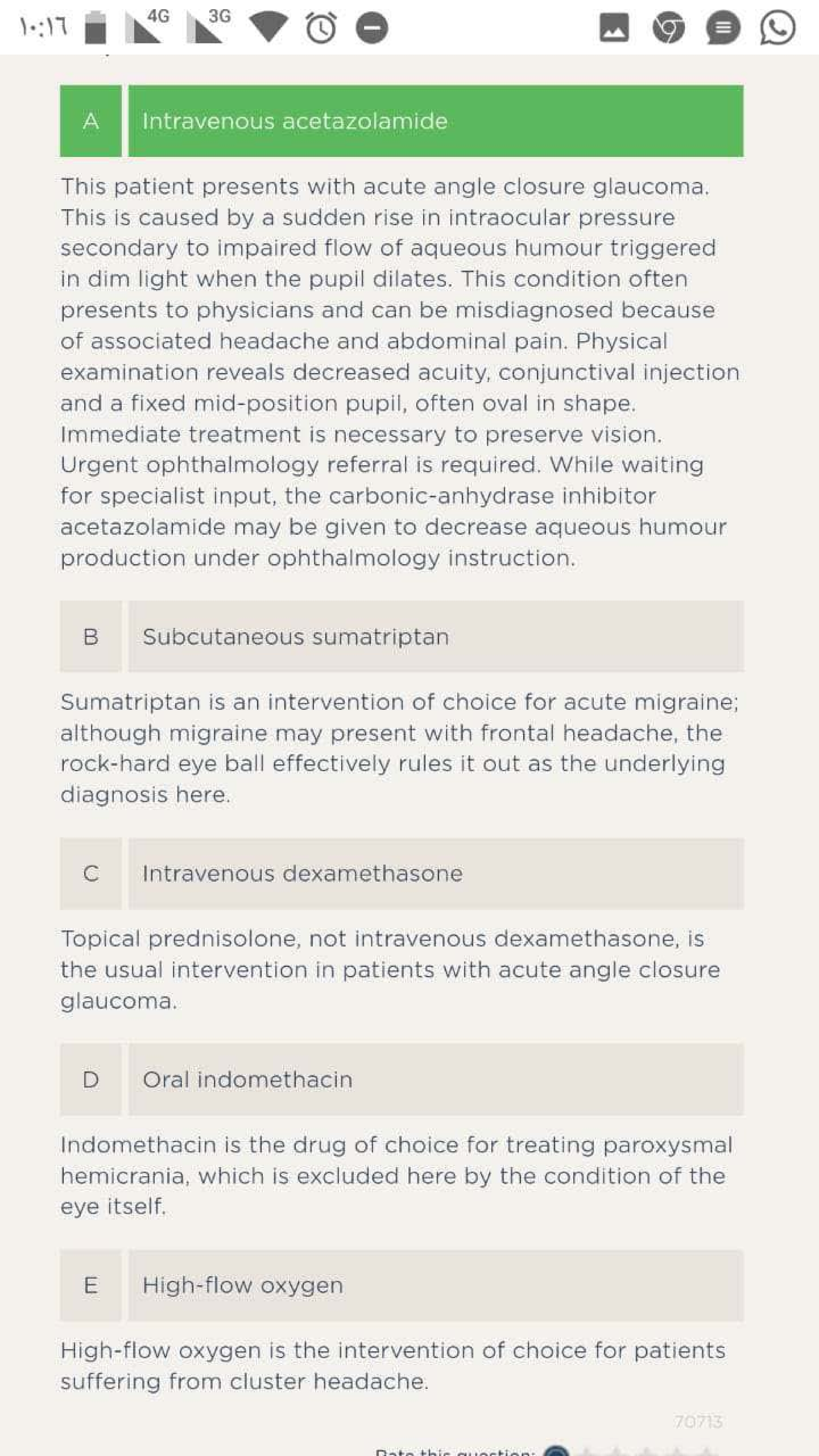
Your answer was correct

A	Intravenous acetazolamide
B	Subcutaneous sumatriptan
C	Intravenous dexamethasone
D	Oral indomethacin
E	High-flow oxygen

Explanation

A Intravenous acetazolamide

This patient presents with acute angle closure glaucoma



A Intravenous acetazolamide

This patient presents with acute angle closure glaucoma. This is caused by a sudden rise in intraocular pressure secondary to impaired flow of aqueous humour triggered in dim light when the pupil dilates. This condition often presents to physicians and can be misdiagnosed because of associated headache and abdominal pain. Physical examination reveals decreased acuity, conjunctival injection and a fixed mid-position pupil, often oval in shape. Immediate treatment is necessary to preserve vision. Urgent ophthalmology referral is required. While waiting for specialist input, the carbonic-anhydrase inhibitor acetazolamide may be given to decrease aqueous humour production under ophthalmology instruction.

B Subcutaneous sumatriptan

Sumatriptan is an intervention of choice for acute migraine; although migraine may present with frontal headache, the rock-hard eye ball effectively rules it out as the underlying diagnosis here.

C Intravenous dexamethasone

Topical prednisolone, not intravenous dexamethasone, is the usual intervention in patients with acute angle closure glaucoma.

D Oral indomethacin

Indomethacin is the drug of choice for treating paroxysmal hemicrania, which is excluded here by the condition of the eye itself.

E High-flow oxygen

High-flow oxygen is the intervention of choice for patients suffering from cluster headache.

70713

Rate this question:

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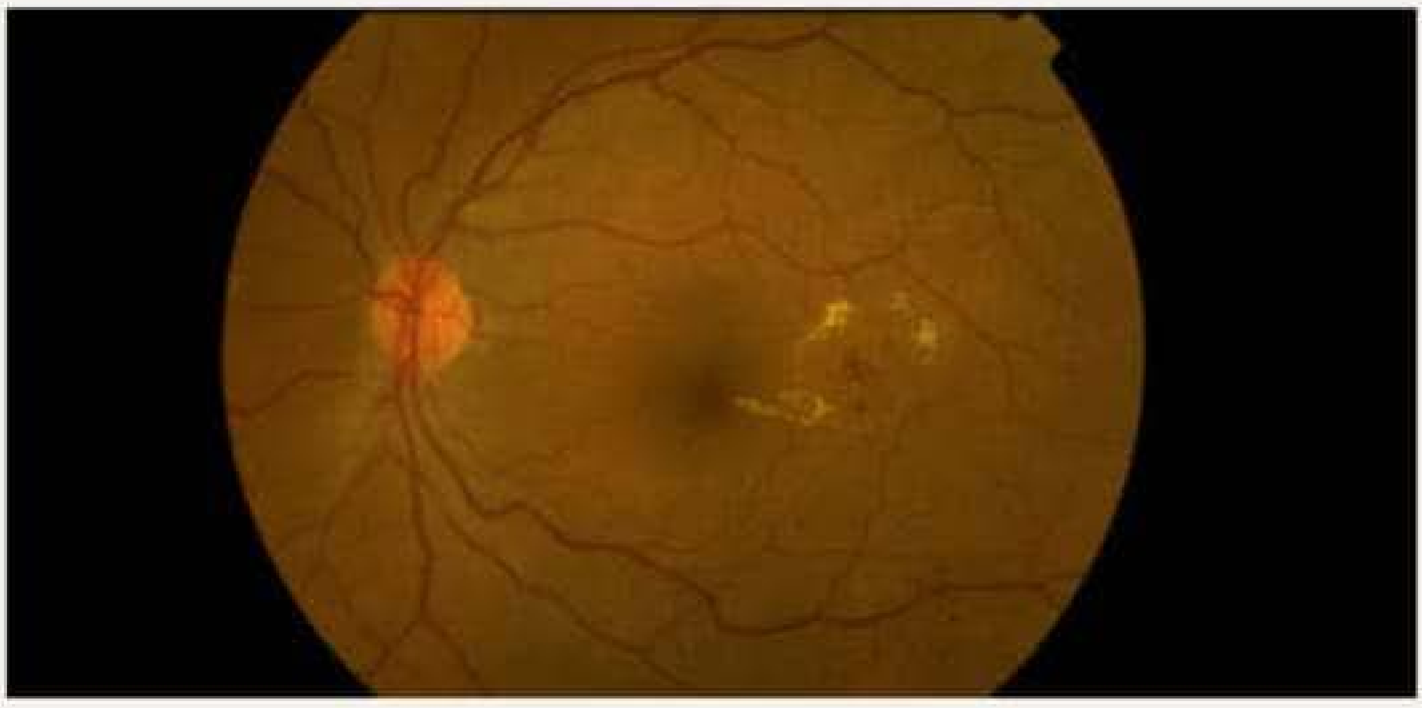
Pastest+ Question 9 of 43

A 62-year-old man with type 2 diabetes, controlled with twice-daily mixed insulin and metformin, comes to the clinic with worsening visual acuity over the past week.

He admits to poor compliance with diet and use of insulin, and a recent HbA1c has been measured at 65 mmol/mol. His blood pressure is 149/88 mmHg.



Which of the following is the most appropriate intervention?

A Acetazolamide

B Bevacizumab

C Dexamethasone implant

D Intravitreal triamcinolone

E Switch to basal bolus insulin therapy

71586

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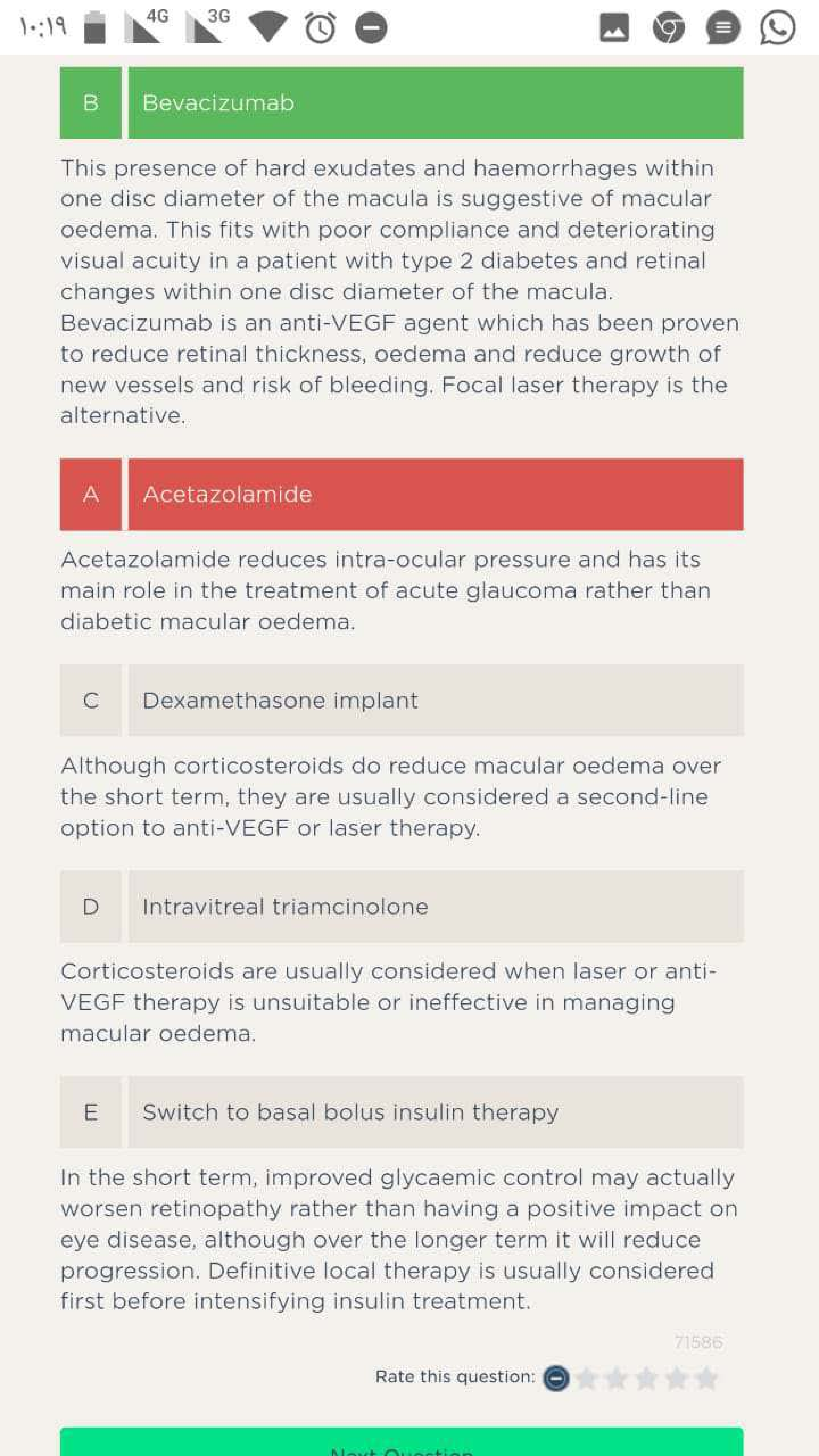

B Bevacizumab

This presence of hard exudates and haemorrhages within one disc diameter of the macula is suggestive of macular oedema. This fits with poor compliance and deteriorating visual acuity in a patient with type 2 diabetes and retinal changes within one disc diameter of the macula. Bevacizumab is an anti-VEGF agent which has been proven to reduce retinal thickness, oedema and reduce growth of new vessels and risk of bleeding. Focal laser therapy is the alternative.

A Acetazolamide

Acetazolamide reduces intra-ocular pressure and has its main role in the treatment of acute glaucoma rather than diabetic macular oedema.

C Dexamethasone implant

Although corticosteroids do reduce macular oedema over the short term, they are usually considered a second-line option to anti-VEGF or laser therapy.

D Intravitreal triamcinolone

Corticosteroids are usually considered when laser or anti-VEGF therapy is unsuitable or ineffective in managing macular oedema.

E Switch to basal bolus insulin therapy

In the short term, improved glycaemic control may actually worsen retinopathy rather than having a positive impact on eye disease, although over the longer term it will reduce progression. Definitive local therapy is usually considered first before intensifying insulin treatment.

71586

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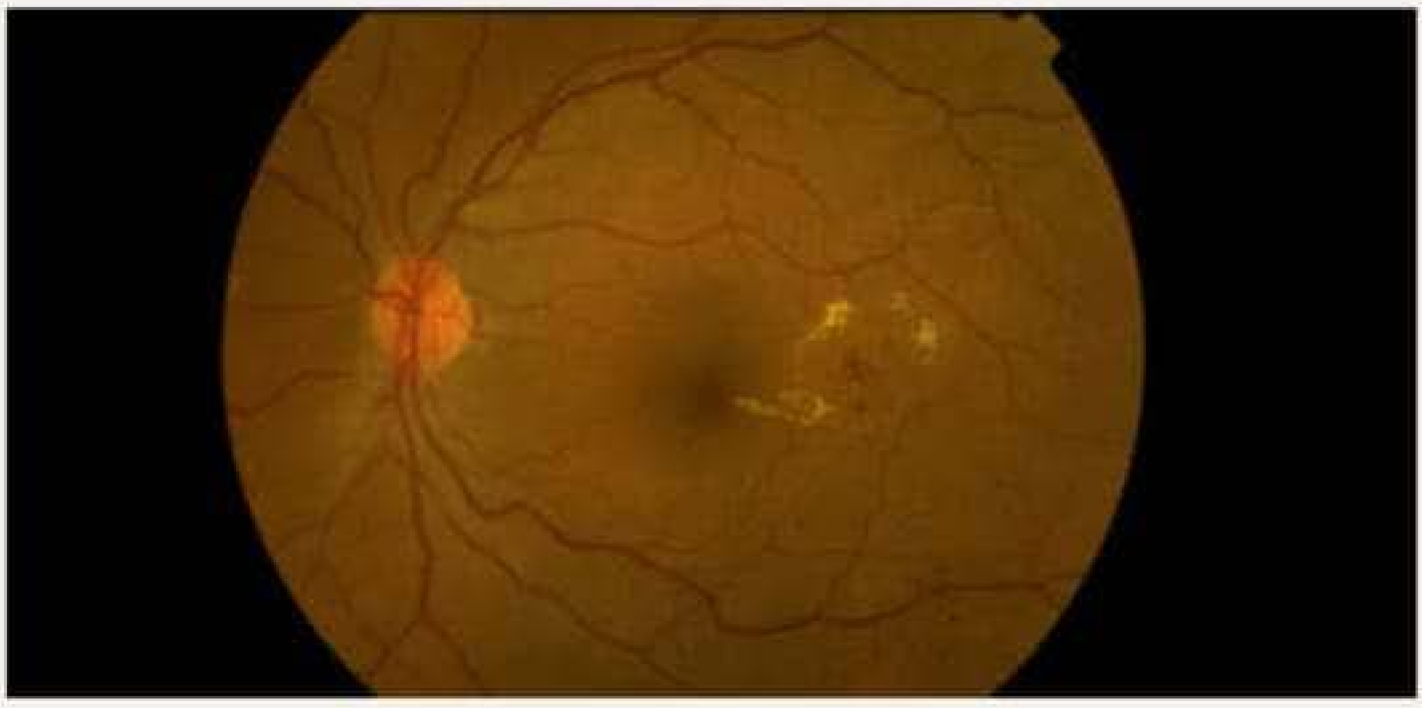

Which of the following is the most appropriate intervention?

Your answer was incorrect

A	Acetazolamide
B	Bevacizumab
C	Dexamethasone implant
D	Intravitreal triamcinolone
E	Switch to basal bolus insulin therapy

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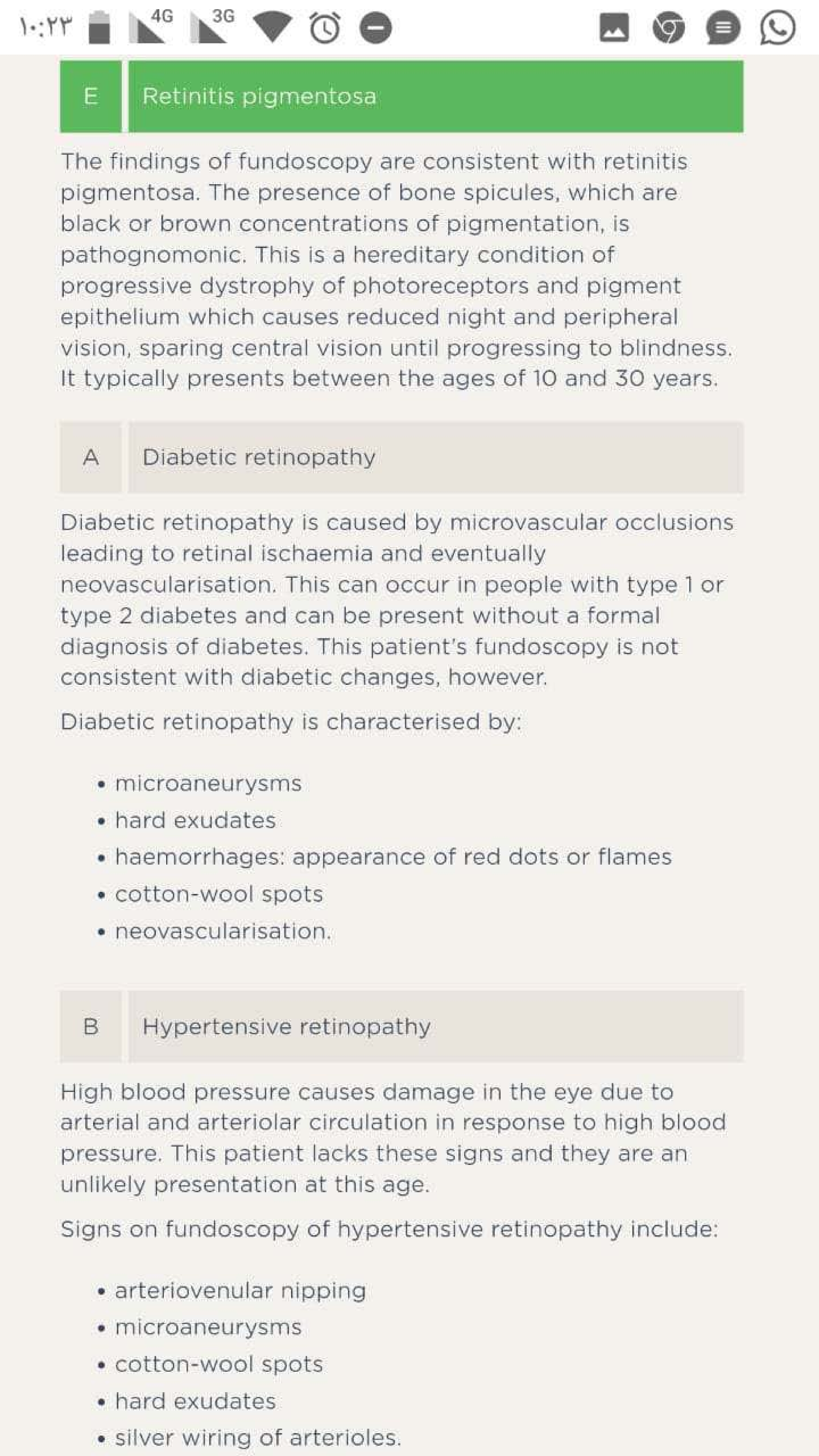
Explanation



E Retinitis pigmentosa

The findings of fundoscopy are consistent with retinitis pigmentosa. The presence of bone spicules, which are black or brown concentrations of pigmentation, is pathognomonic. This is a hereditary condition of progressive dystrophy of photoreceptors and pigment epithelium which causes reduced night and peripheral vision, sparing central vision until progressing to blindness. It typically presents between the ages of 10 and 30 years.

A Diabetic retinopathy

Diabetic retinopathy is caused by microvascular occlusions leading to retinal ischaemia and eventually neovascularisation. This can occur in people with type 1 or type 2 diabetes and can be present without a formal diagnosis of diabetes. This patient's fundoscopy is not consistent with diabetic changes, however.

Diabetic retinopathy is characterised by:

- microaneurysms
- hard exudates
- haemorrhages: appearance of red dots or flames
- cotton-wool spots
- neovascularisation.

B Hypertensive retinopathy

High blood pressure causes damage in the eye due to arterial and arteriolar circulation in response to high blood pressure. This patient lacks these signs and they are an unlikely presentation at this age.

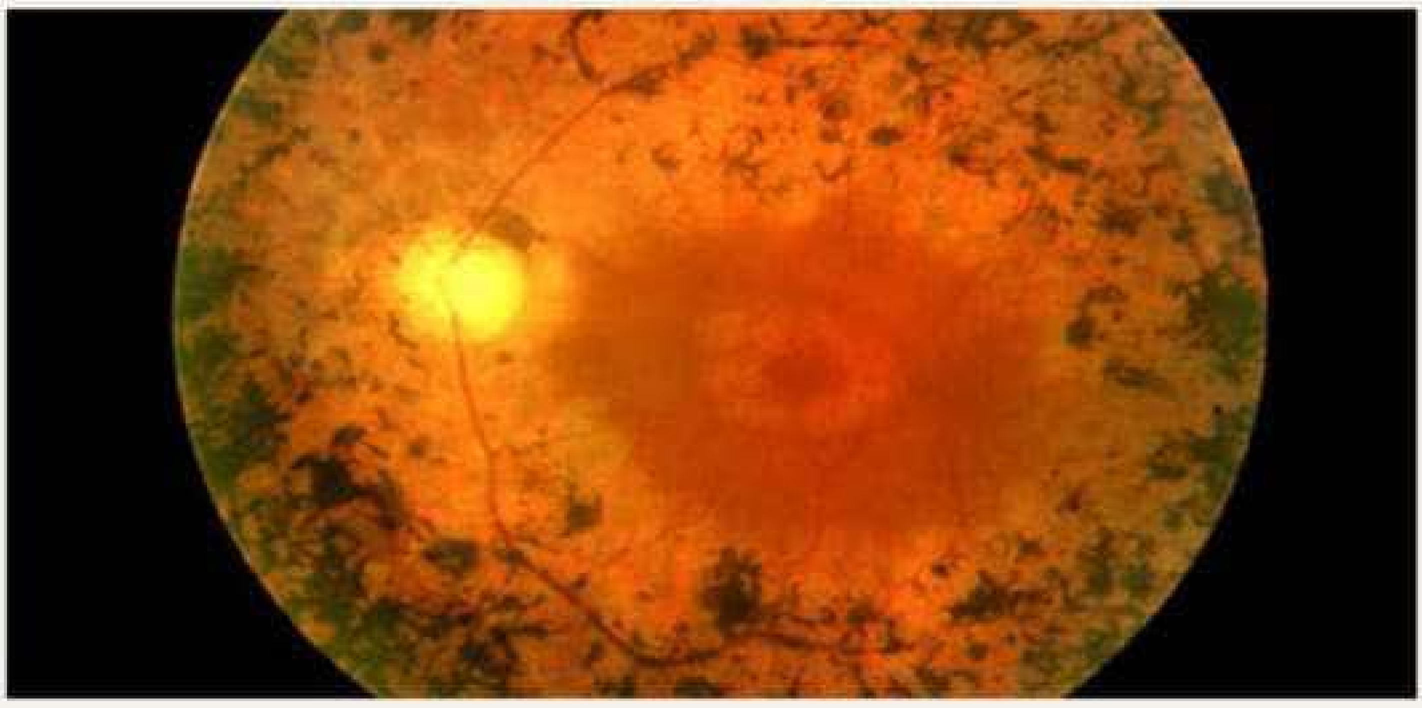
Signs on fundoscopy of hypertensive retinopathy include:

- arteriovenular nipping
- microaneurysms
- cotton-wool spots
- hard exudates
- silver wiring of arterioles.

A 19-year-old woman presents to Ophthalmology Clinic. She has attended because when practising for her driving test, her mother has noticed that she sometimes does not seem to notice cars coming up beside her when driving. They once tried driving in the evening, but this was very difficult.

The patient describes herself as clumsy but has not noticed any deterioration in vision.

Her fundoscopy is shown below.



What is the likely diagnosis?

A	Diabetic retinopathy
B	Hypertensive retinopathy
C	Conjunctivitis
D	Multiple sclerosis
E	Retinitis pigmentosa

71599

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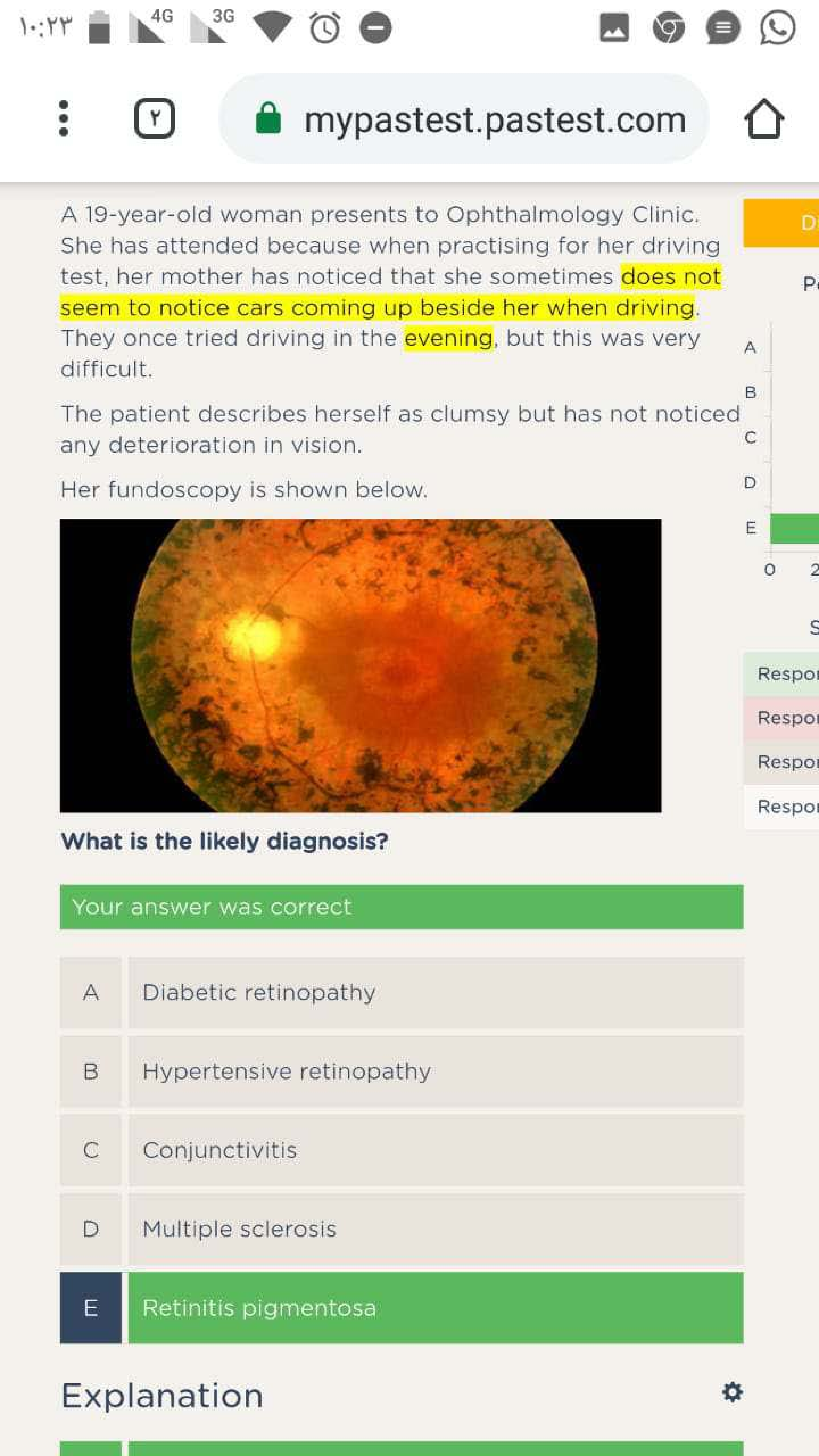

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What is the likely diagnosis?

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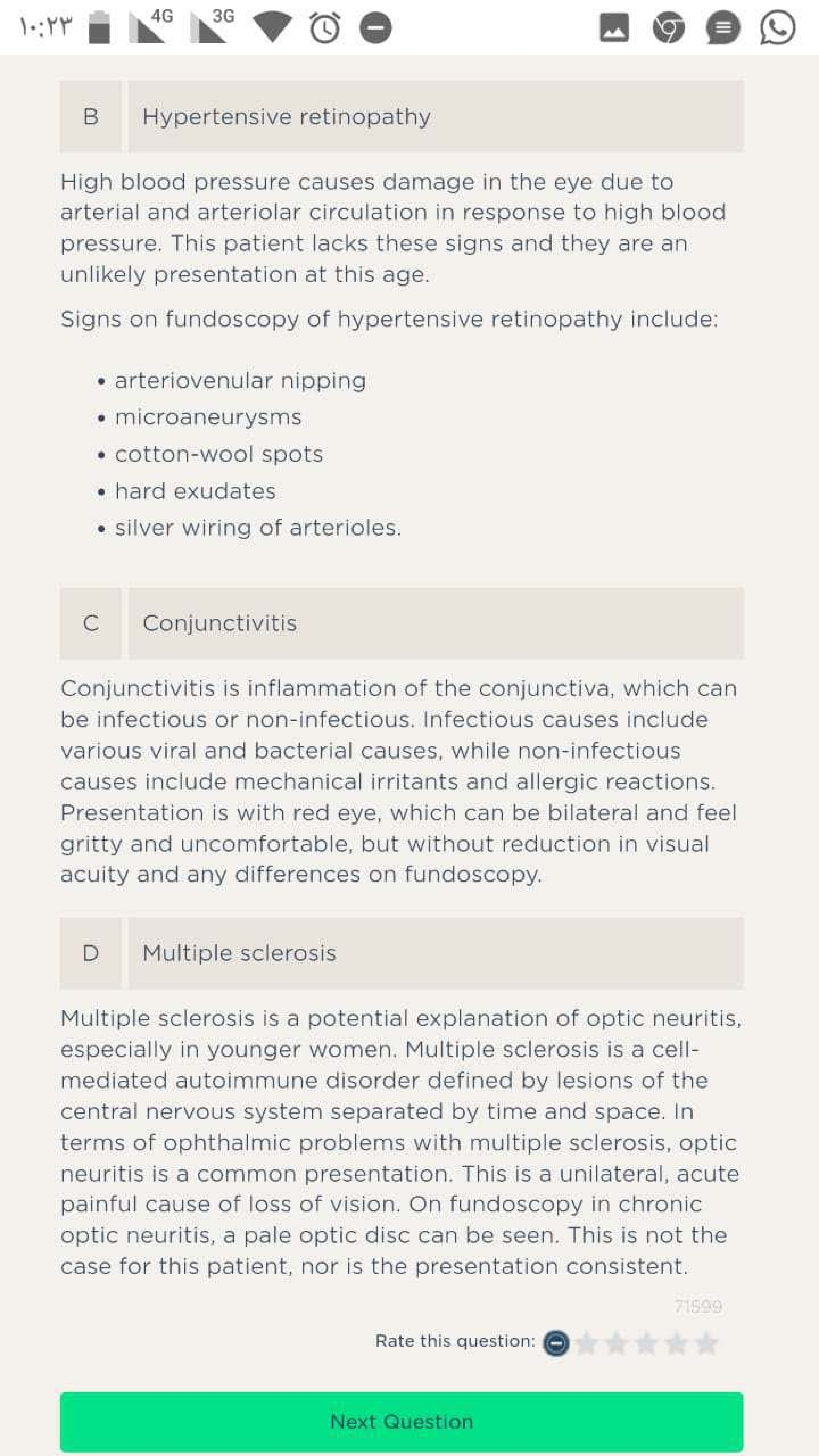
Explanation



B	Hypertensive retinopathy

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Signs on fundoscopy of hypertensive retinopathy include:

- arteriovenular nipping
- microaneurysms
- cotton-wool spots
- hard exudates
- silver wiring of arterioles.

C	Conjunctivitis

Conjunctivitis is inflammation of the conjunctiva, which can be infectious or non-infectious. Infectious causes include various viral and bacterial causes, while non-infectious causes include mechanical irritants and allergic reactions. Presentation is with red eye, which can be bilateral and feel gritty and uncomfortable, but without reduction in visual acuity and any differences on fundoscopy.

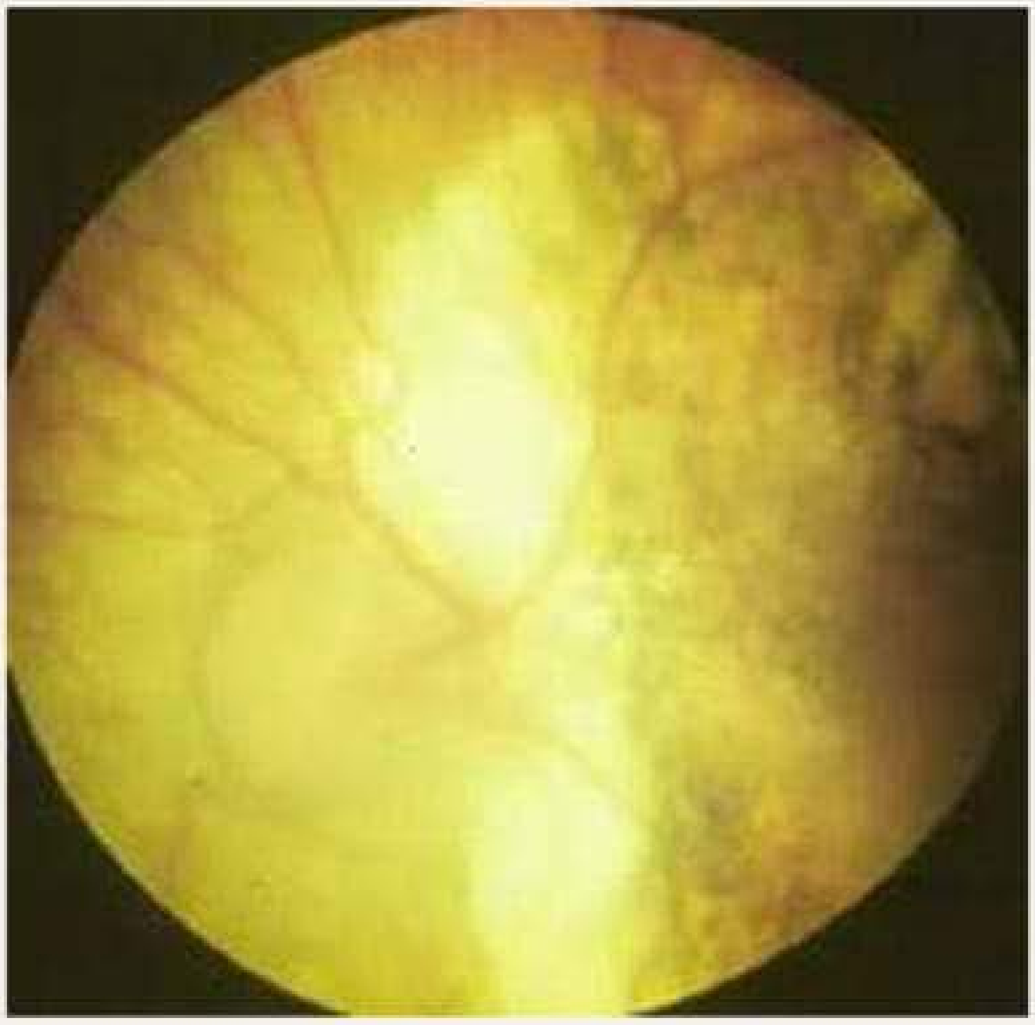
D	Multiple sclerosis

Multiple sclerosis is a potential explanation of optic neuritis, especially in younger women. Multiple sclerosis is a cell-mediated autoimmune disorder defined by lesions of the central nervous system separated by time and space. In terms of ophthalmic problems with multiple sclerosis, optic neuritis is a common presentation. This is a unilateral, acute painful cause of loss of vision. On fundoscopy in chronic optic neuritis, a pale optic disc can be seen. This is not the case for this patient, nor is the presentation consistent.

71599

An 18-year-old man who works in a boarding kennels for cats and dogs is referred by his general practitioner (GP) after he presented complaining of right ocular pain and blurred, 'hazy' vision for several weeks.

The fundal appearance is shown below:



What is the most likely cause of this appearance?

A	Toxoplasmosis
B	Retinitis pigmentosa
C	Retrobulbar neuritis
D	Cytomegalovirus (CMV)
E	Retinal detachment

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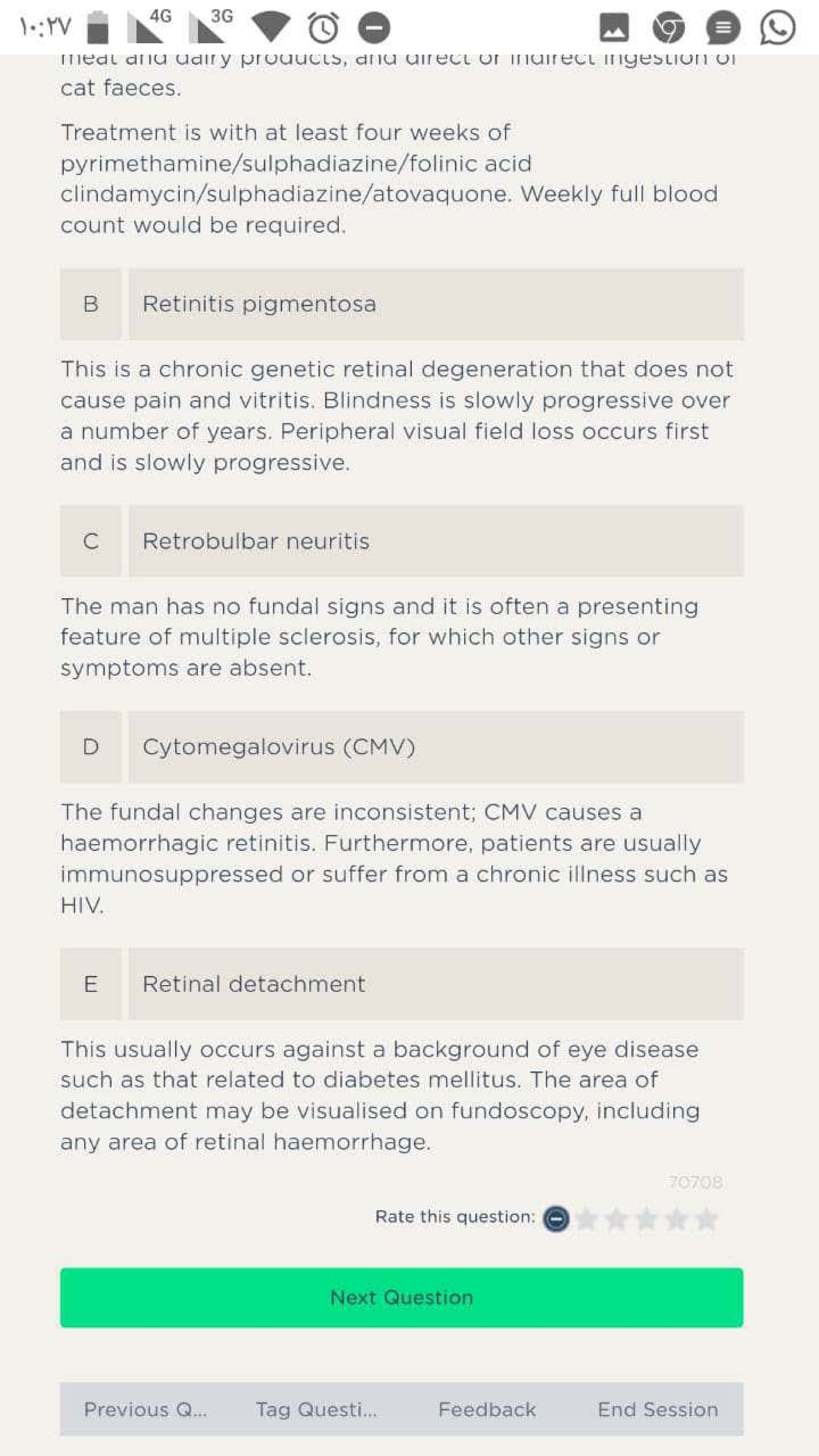

meat and dairy products, and direct or indirect ingestion of cat faeces.

Treatment is with at least four weeks of pyrimethamine/sulphadiazine/folinic acid clindamycin/sulphadiazine/atovaquone. Weekly full blood count would be required.

B	Retinitis pigmentosa

This is a chronic genetic retinal degeneration that does not cause pain and vitritis. Blindness is slowly progressive over a number of years. Peripheral visual field loss occurs first and is slowly progressive.

C	Retrobulbar neuritis

The man has no fundal signs and it is often a presenting feature of multiple sclerosis, for which other signs or symptoms are absent.

D	Cytomegalovirus (CMV)

The fundal changes are inconsistent; CMV causes a haemorrhagic retinitis. Furthermore, patients are usually immunosuppressed or suffer from a chronic illness such as HIV.

E	Retinal detachment

This usually occurs against a background of eye disease such as that related to diabetes mellitus. The area of detachment may be visualised on fundoscopy, including any area of retinal haemorrhage.

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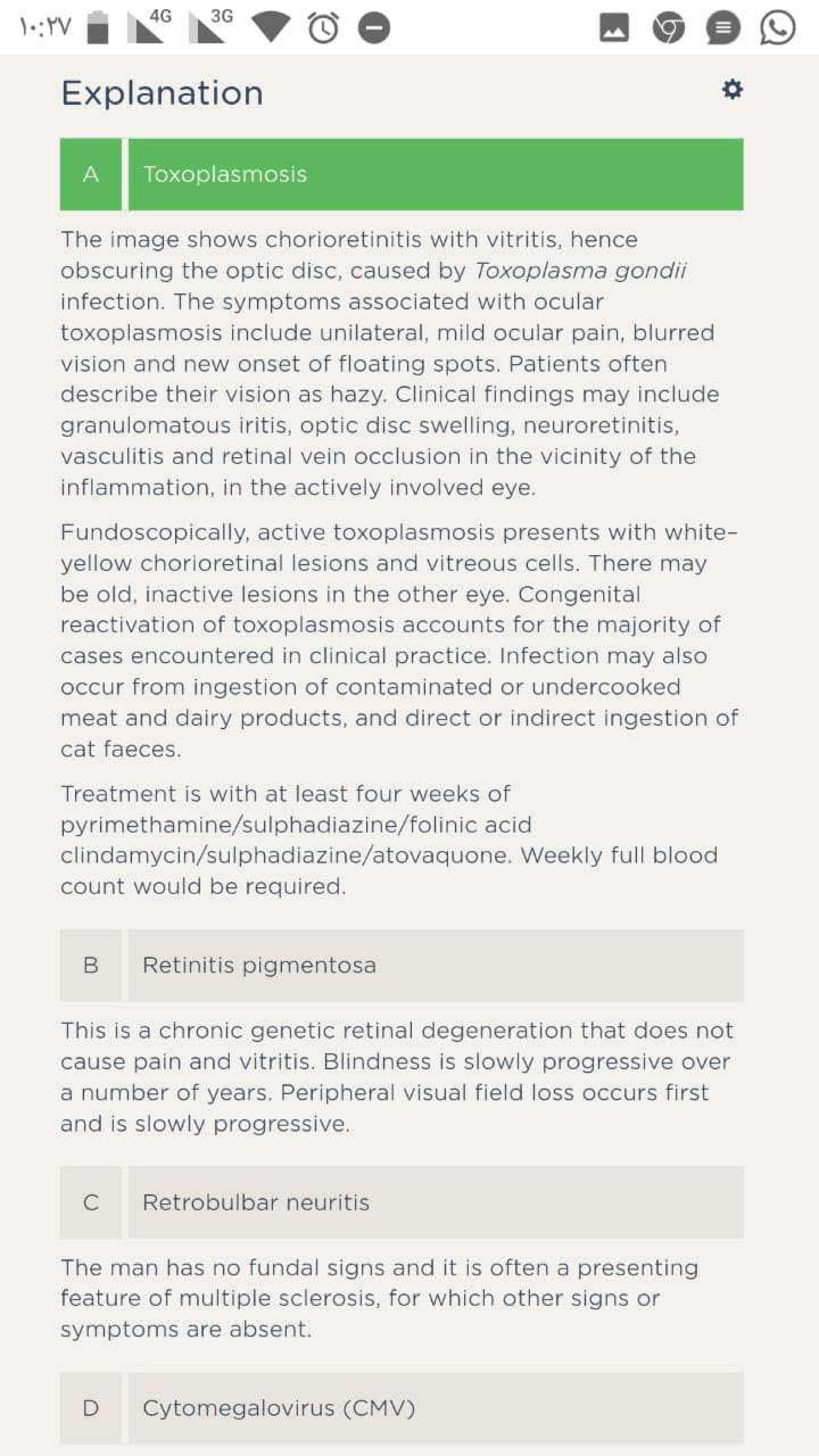

Explanation

A Toxoplasmosis

The image shows chorioretinitis with vitritis, hence obscuring the optic disc, caused by *Toxoplasma gondii* infection. The symptoms associated with ocular toxoplasmosis include unilateral, mild ocular pain, blurred vision and new onset of floating spots. Patients often describe their vision as hazy. Clinical findings may include granulomatous iritis, optic disc swelling, neuroretinitis, vasculitis and retinal vein occlusion in the vicinity of the inflammation, in the actively involved eye.

Fundoscopically, active toxoplasmosis presents with white-yellow chorioretinal lesions and vitreous cells. There may be old, inactive lesions in the other eye. Congenital reactivation of toxoplasmosis accounts for the majority of cases encountered in clinical practice. Infection may also occur from ingestion of contaminated or undercooked meat and dairy products, and direct or indirect ingestion of cat faeces.

Treatment is with at least four weeks of pyrimethamine/sulphadiazine/folinic acid clindamycin/sulphadiazine/atovaquone. Weekly full blood count would be required.

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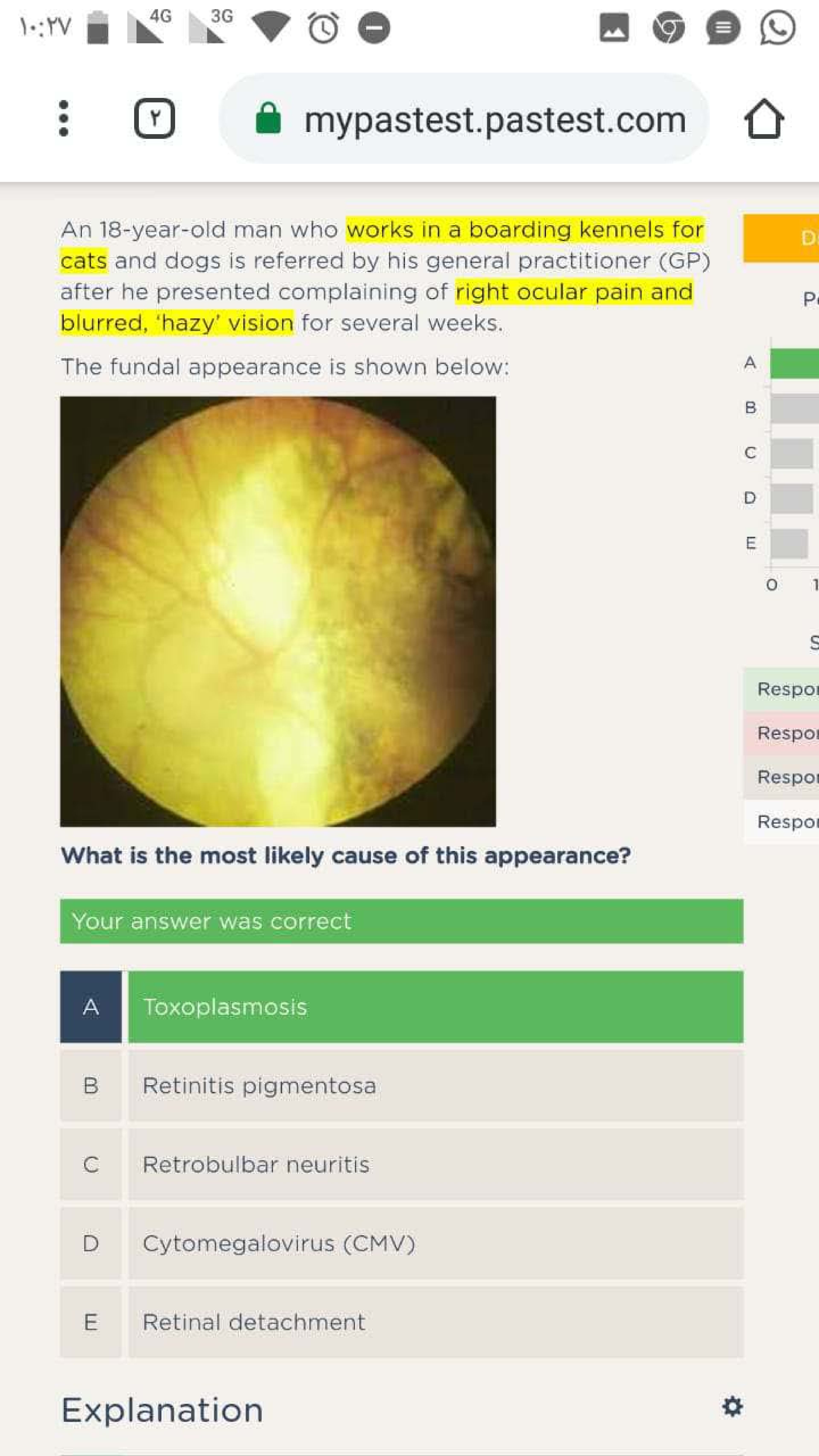

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Your answer was correct

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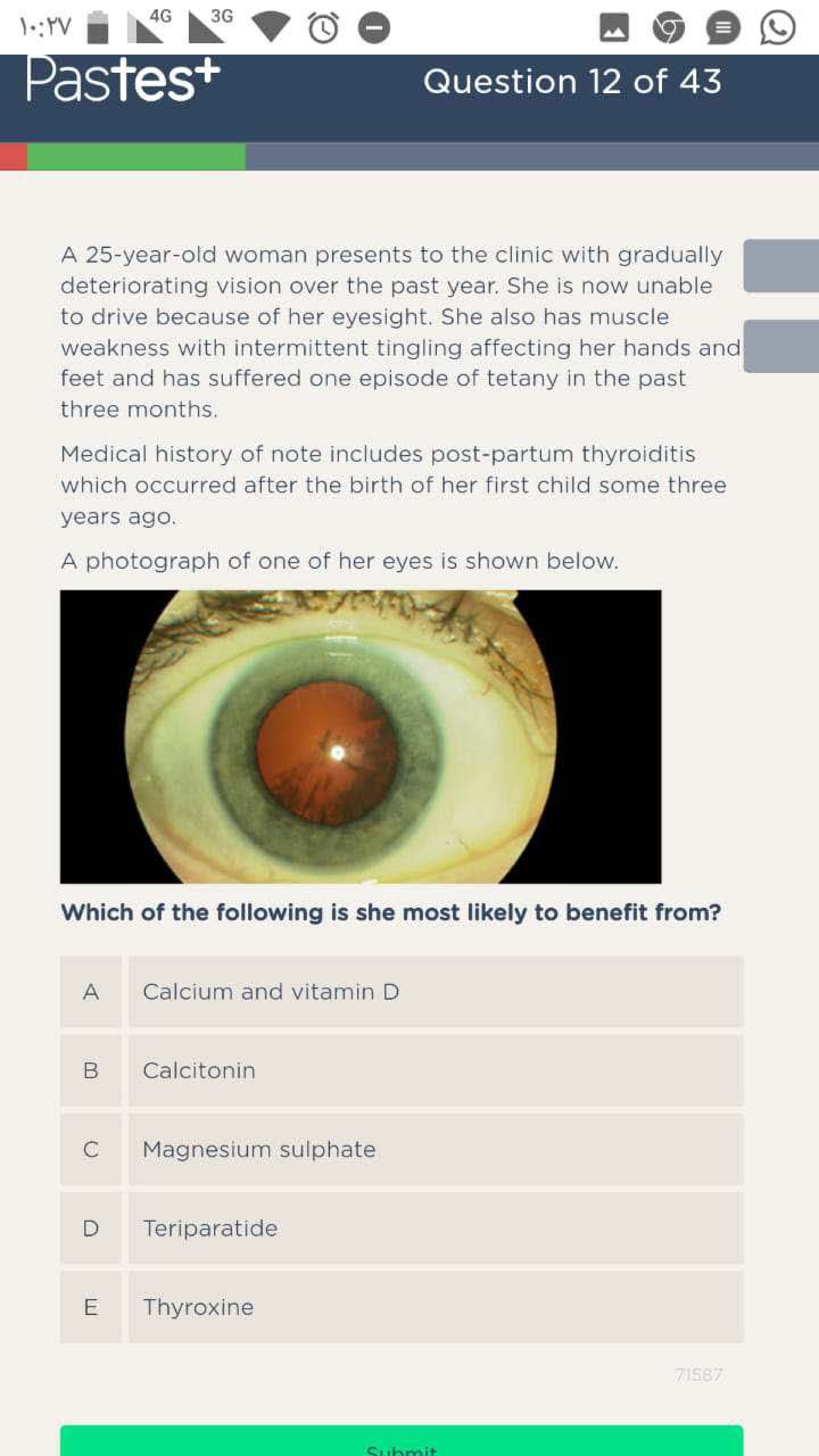
E	Retinal detachment

Explanation



Question 12 of 43

A 25-year-old woman presents to the clinic with gradually deteriorating vision over the past year. She is now unable to drive because of her eyesight. She also has muscle weakness with intermittent tingling affecting her hands and feet and has suffered one episode of tetany in the past three months.

Medical history of note includes post-partum thyroiditis which occurred after the birth of her first child some three years ago.

A photograph of one of her eyes is shown below.

Which of the following is she most likely to benefit from?

A	Calcium and vitamin D
B	Calcitonin
C	Magnesium sulphate
D	Teriparatide
E	Thyroxine

71587

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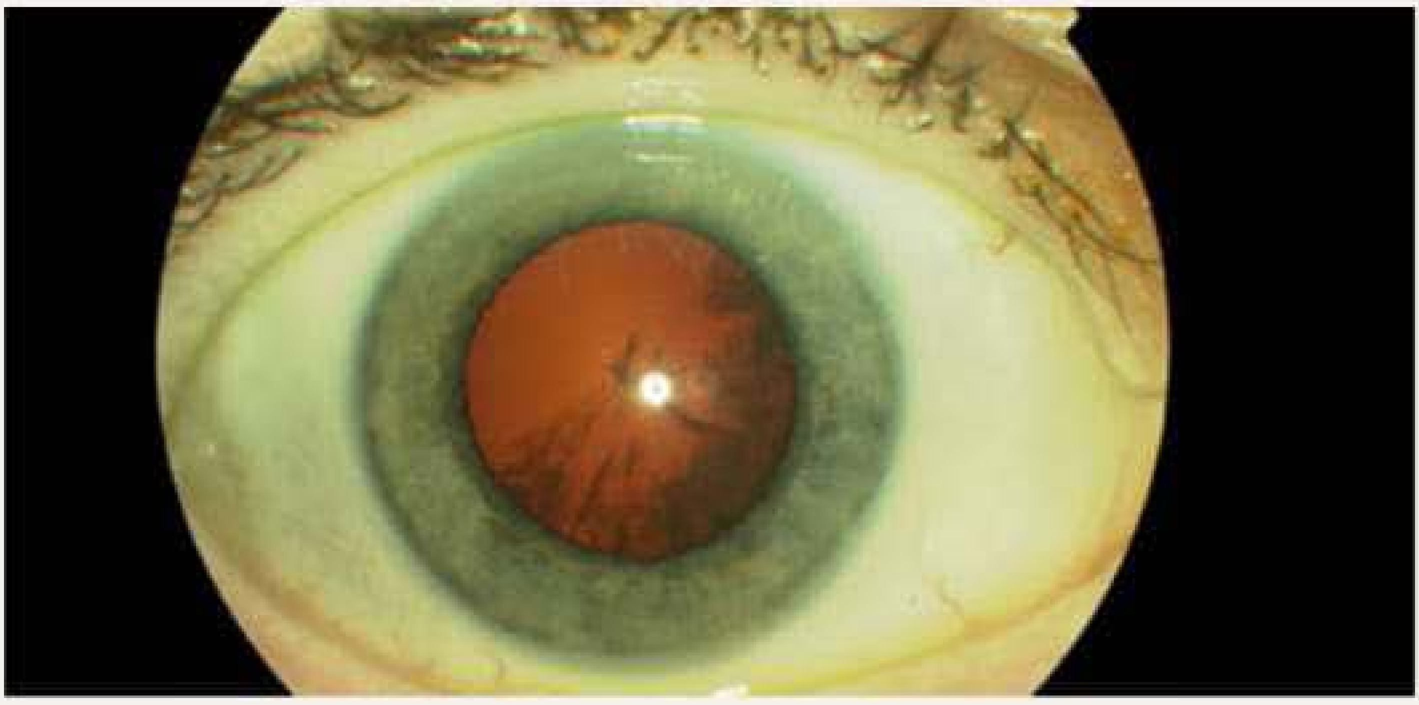

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B	Calcitonin
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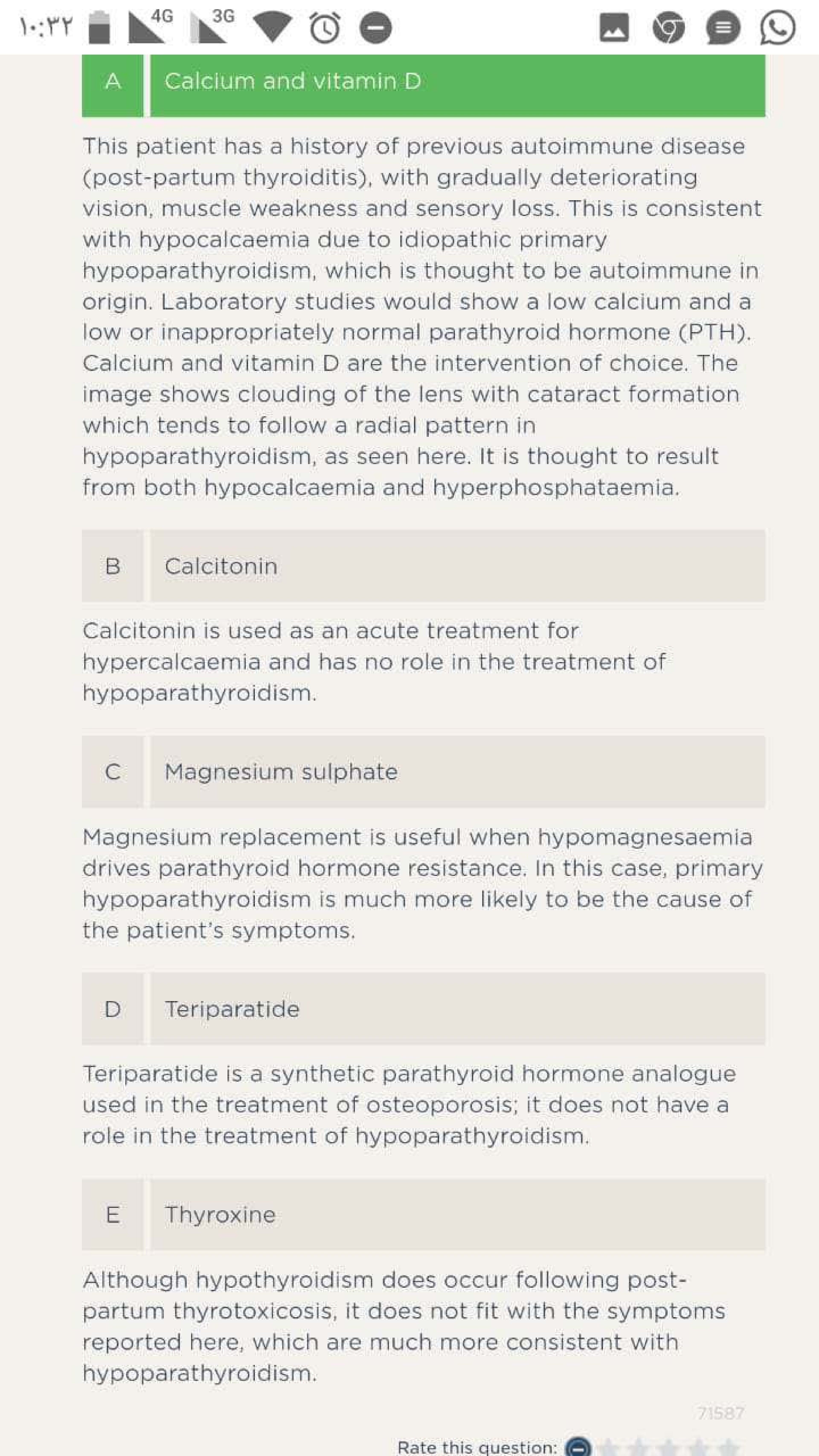
E	Thyroxine

Explanation

A Calcium and vitamin D



A	Calcium and vitamin D

This patient has a history of previous autoimmune disease (post-partum thyroiditis), with gradually deteriorating vision, muscle weakness and sensory loss. This is consistent with hypocalcaemia due to idiopathic primary hypoparathyroidism, which is thought to be autoimmune in origin. Laboratory studies would show a low calcium and a low or inappropriately normal parathyroid hormone (PTH). Calcium and vitamin D are the intervention of choice. The image shows clouding of the lens with cataract formation which tends to follow a radial pattern in hypoparathyroidism, as seen here. It is thought to result from both hypocalcaemia and hyperphosphataemia.

B	Calcitonin

Calcitonin is used as an acute treatment for hypercalcaemia and has no role in the treatment of hypoparathyroidism.

C	Magnesium sulphate

Magnesium replacement is useful when hypomagnesaemia drives parathyroid hormone resistance. In this case, primary hypoparathyroidism is much more likely to be the cause of the patient’s symptoms.

D	Teriparatide

Teriparatide is a synthetic parathyroid hormone analogue used in the treatment of osteoporosis; it does not have a role in the treatment of hypoparathyroidism.

E	Thyroxine

Although hypothyroidism does occur following post-partum thyrotoxicosis, it does not fit with the symptoms reported here, which are much more consistent with hypoparathyroidism.

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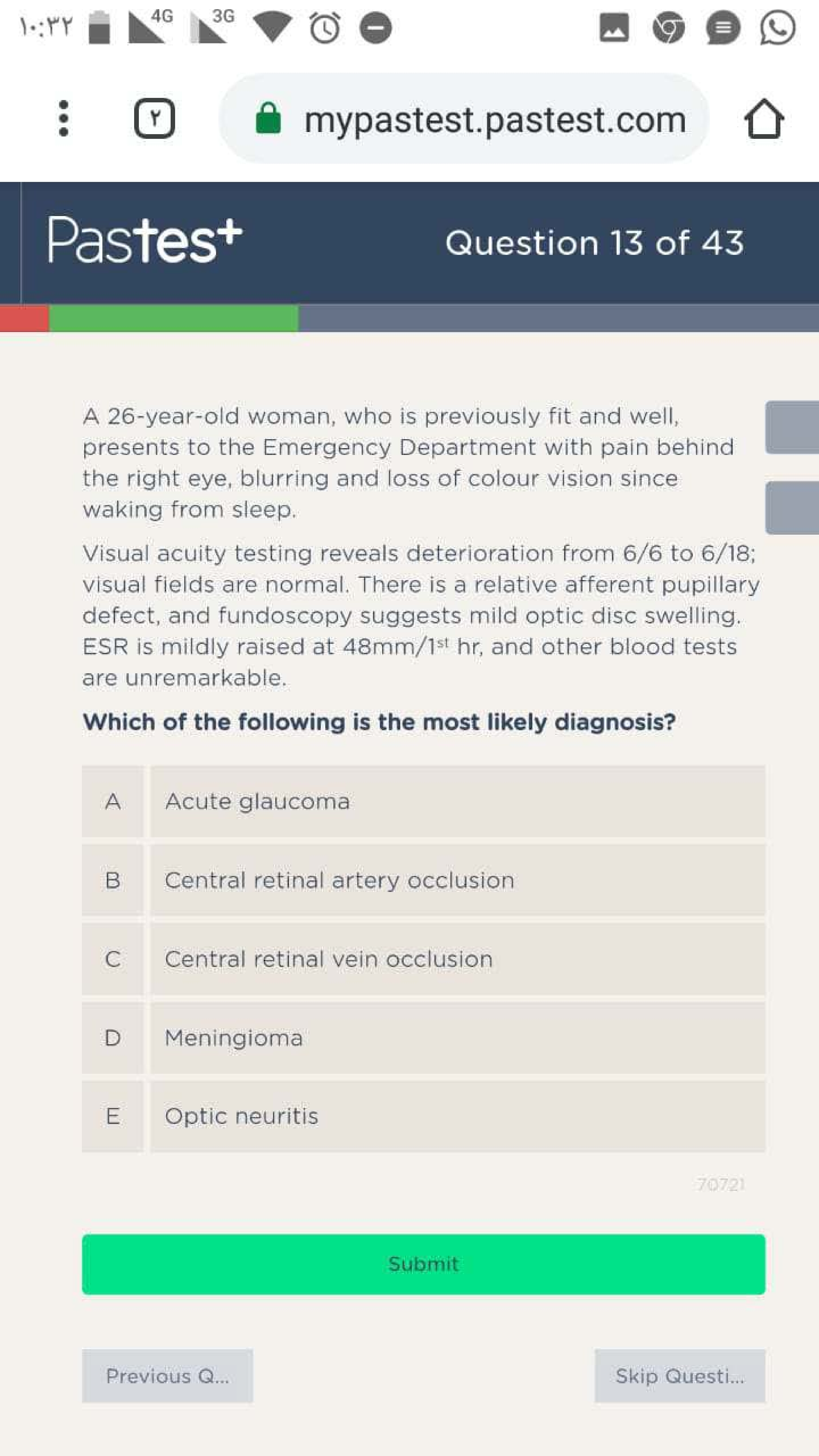
Rate this question:



A 26-year-old woman, who is previously fit and well, presents to the Emergency Department with pain behind the right eye, blurring and loss of colour vision since waking from sleep.

Visual acuity testing reveals deterioration from 6/6 to 6/18; visual fields are normal. There is a relative afferent pupillary defect, and fundoscopy suggests mild optic disc swelling. ESR is mildly raised at 48mm/1st hr, and other blood tests are unremarkable.

Which of the following is the most likely diagnosis?

A	Acute glaucoma
B	Central retinal artery occlusion
C	Central retinal vein occlusion
D	Meningioma
E	Optic neuritis

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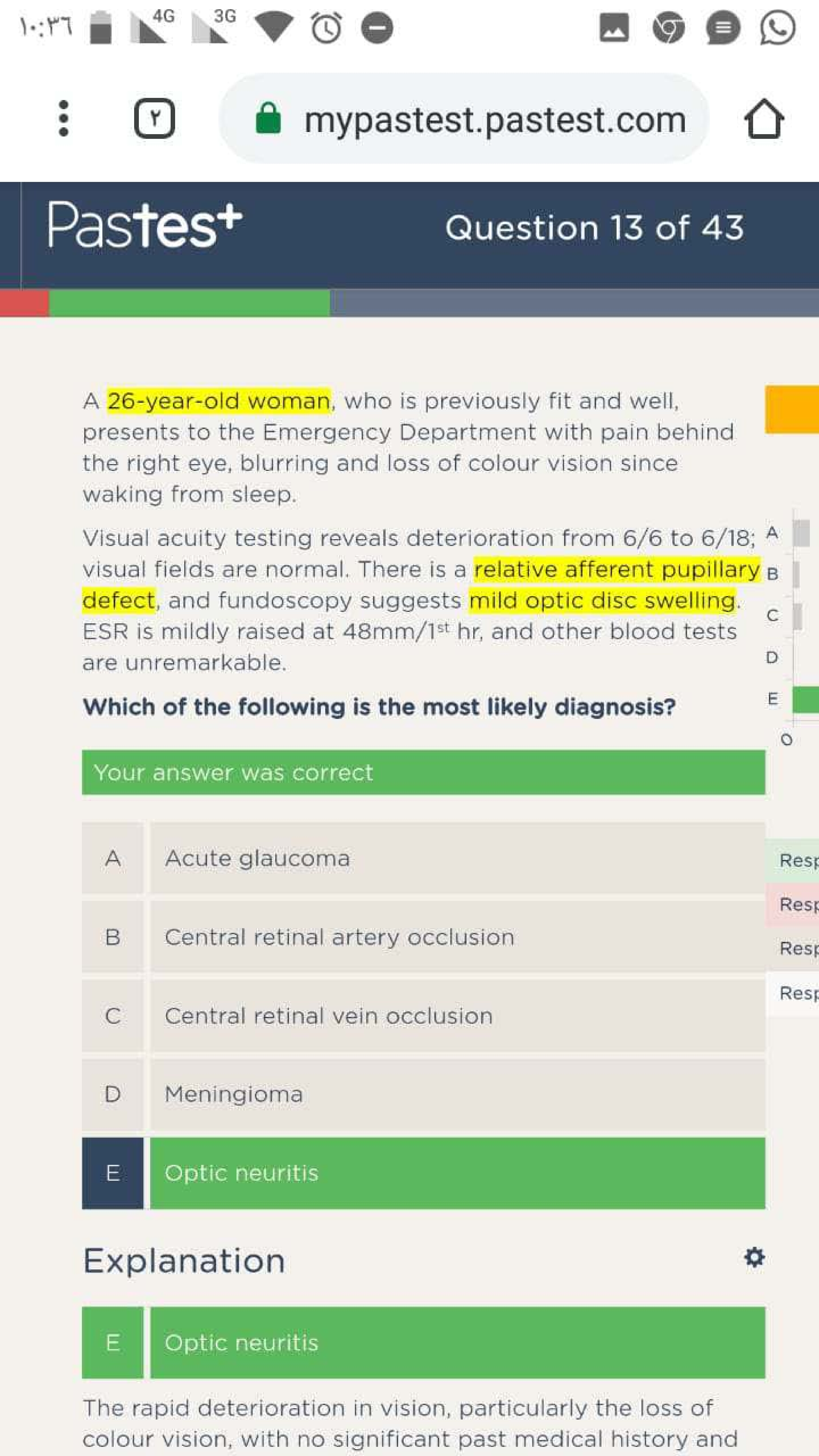

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Which of the following is the most likely diagnosis?

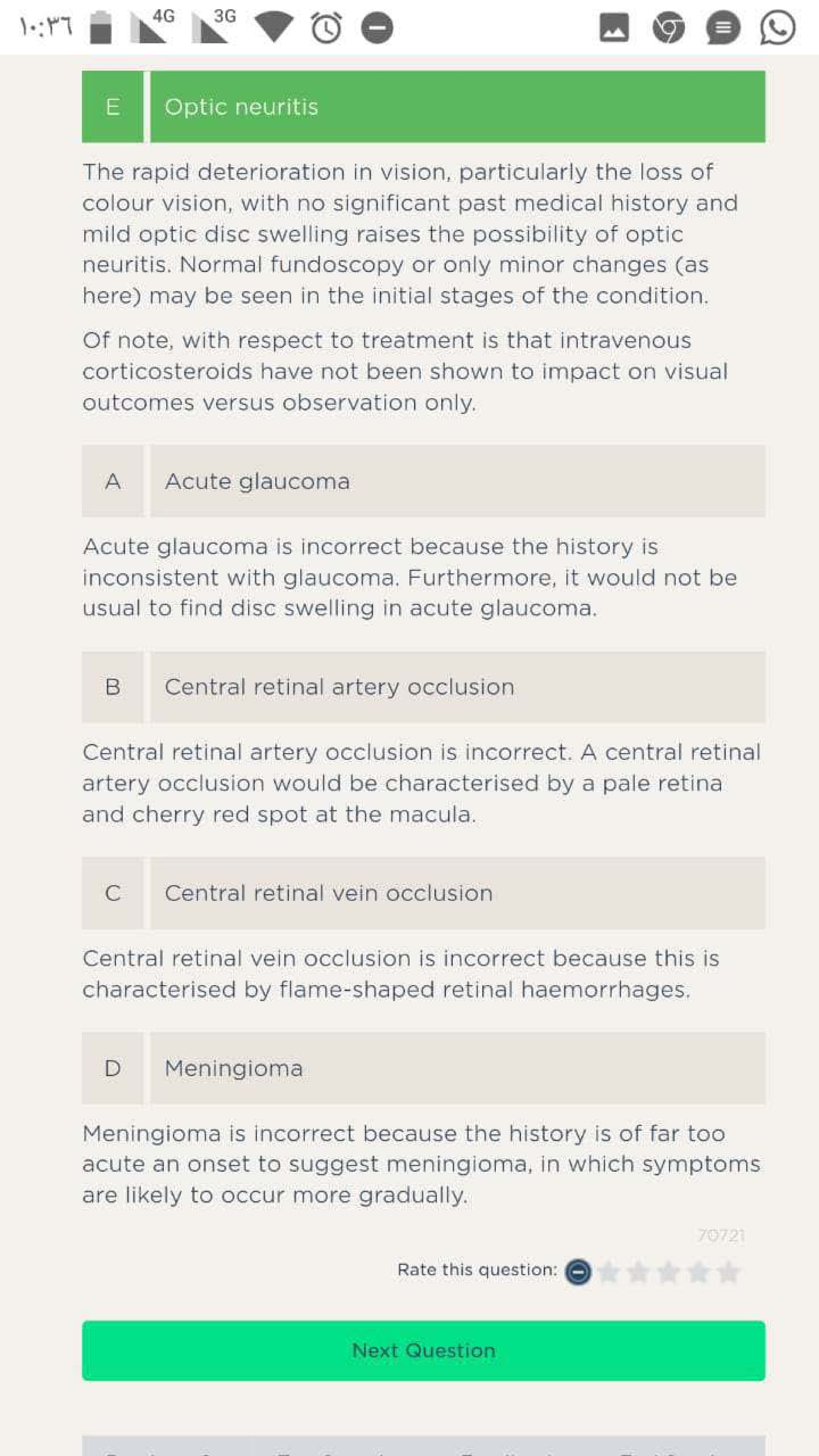
Your answer was correct

- A Acute glaucoma
- B Central retinal artery occlusion
- C Central retinal vein occlusion
- D Meningioma
- E Optic neuritis

Explanation

E Optic neuritis

The rapid deterioration in vision, particularly the loss of colour vision, with no significant past medical history and



E Optic neuritis

The rapid deterioration in vision, particularly the loss of colour vision, with no significant past medical history and mild optic disc swelling raises the possibility of optic neuritis. Normal fundoscopy or only minor changes (as here) may be seen in the initial stages of the condition.

Of note, with respect to treatment is that intravenous corticosteroids have not been shown to impact on visual outcomes versus observation only.

A Acute glaucoma

Acute glaucoma is incorrect because the history is inconsistent with glaucoma. Furthermore, it would not be usual to find disc swelling in acute glaucoma.

B Central retinal artery occlusion

Central retinal artery occlusion is incorrect. A central retinal artery occlusion would be characterised by a pale retina and cherry red spot at the macula.

C Central retinal vein occlusion

Central retinal vein occlusion is incorrect because this is characterised by flame-shaped retinal haemorrhages.

D Meningioma

Meningioma is incorrect because the history is of far too acute an onset to suggest meningioma, in which symptoms are likely to occur more gradually.

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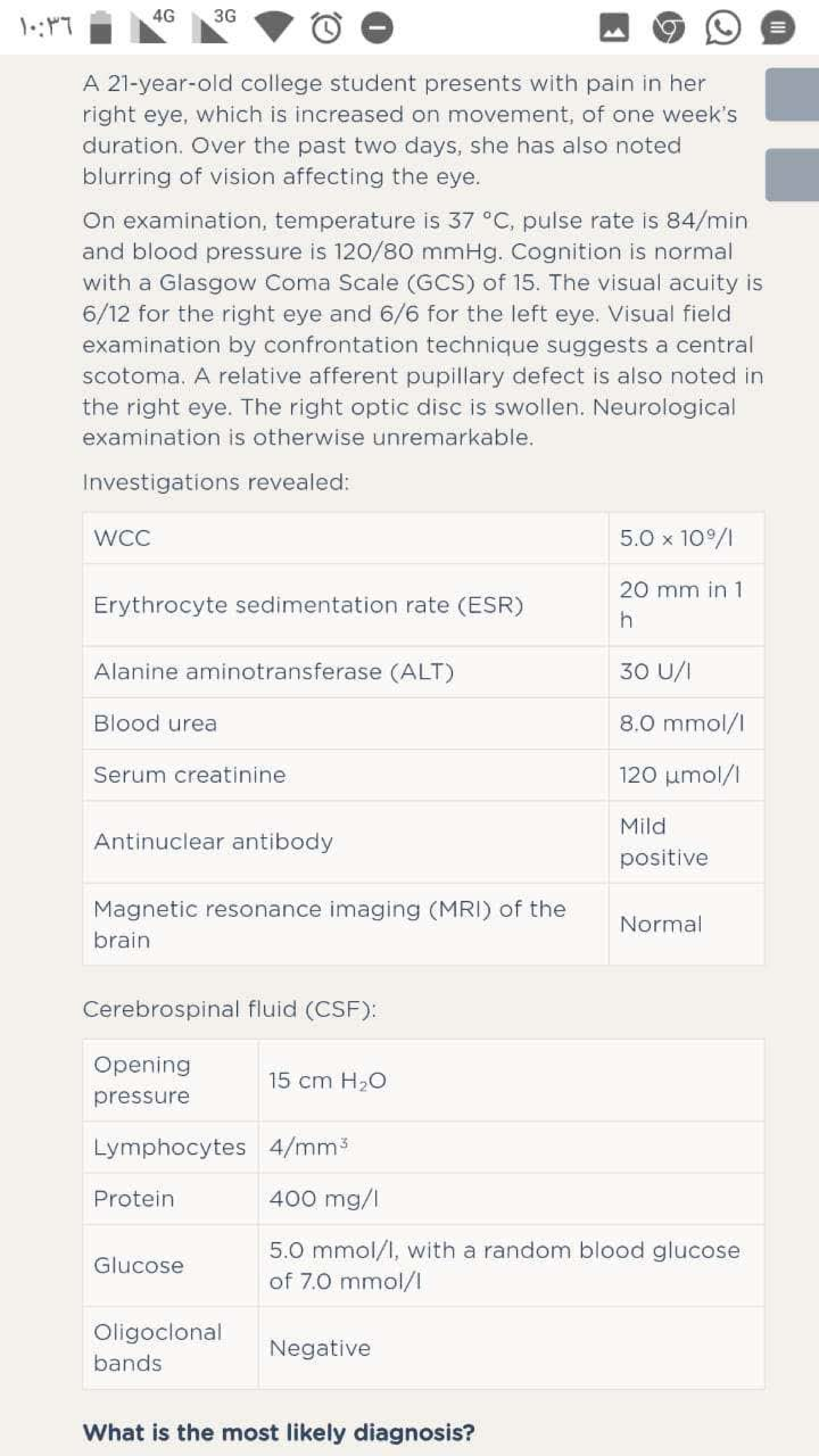


A 21-year-old college student presents with pain in her right eye, which is increased on movement, of one week's duration. Over the past two days, she has also noted blurring of vision affecting the eye.

On examination, temperature is 37 °C, pulse rate is 84/min and blood pressure is 120/80 mmHg. Cognition is normal with a Glasgow Coma Scale (GCS) of 15. The visual acuity is 6/12 for the right eye and 6/6 for the left eye. Visual field examination by confrontation technique suggests a central scotoma. A relative afferent pupillary defect is also noted in the right eye. The right optic disc is swollen. Neurological examination is otherwise unremarkable.

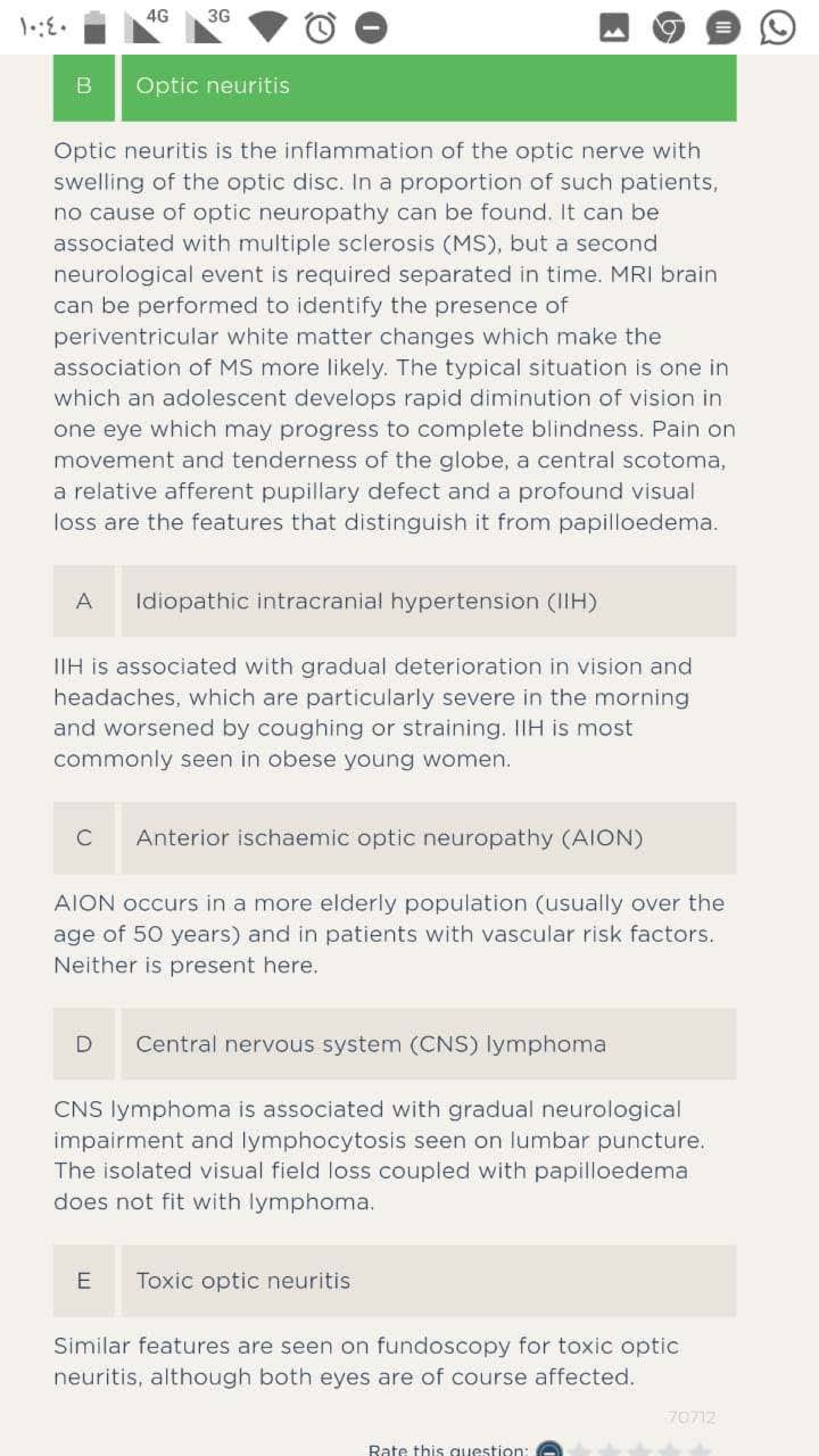
Investigations revealed:

WCC	5.0×10^9/l
Erythrocyte sedimentation rate (ESR)	20 mm in 1 h
Alanine aminotransferase (ALT)	30 U/l
Blood urea	8.0 mmol/l
Serum creatinine	120 µmol/l
Antinuclear antibody	Mild positive
Magnetic resonance imaging (MRI) of the brain	Normal

Cerebrospinal fluid (CSF):

Opening pressure	15 cm H_2O
Lymphocytes	4/mm^3
Protein	400 mg/l
Glucose	5.0 mmol/l, with a random blood glucose of 7.0 mmol/l
Oligoclonal bands	Negative

What is the most likely diagnosis?



B Optic neuritis

Optic neuritis is the inflammation of the optic nerve with swelling of the optic disc. In a proportion of such patients, no cause of optic neuropathy can be found. It can be associated with multiple sclerosis (MS), but a second neurological event is required separated in time. MRI brain can be performed to identify the presence of periventricular white matter changes which make the association of MS more likely. The typical situation is one in which an adolescent develops rapid diminution of vision in one eye which may progress to complete blindness. Pain on movement and tenderness of the globe, a central scotoma, a relative afferent pupillary defect and a profound visual loss are the features that distinguish it from papilloedema.

A Idiopathic intracranial hypertension (IIH)

IIH is associated with gradual deterioration in vision and headaches, which are particularly severe in the morning and worsened by coughing or straining. IIH is most commonly seen in obese young women.

C Anterior ischaemic optic neuropathy (AION)

AION occurs in a more elderly population (usually over the age of 50 years) and in patients with vascular risk factors. Neither is present here.

D Central nervous system (CNS) lymphoma

CNS lymphoma is associated with gradual neurological impairment and lymphocytosis seen on lumbar puncture. The isolated visual field loss coupled with papilloedema does not fit with lymphoma.

E Toxic optic neuritis

Similar features are seen on fundoscopy for toxic optic neuritis, although both eyes are of course affected.

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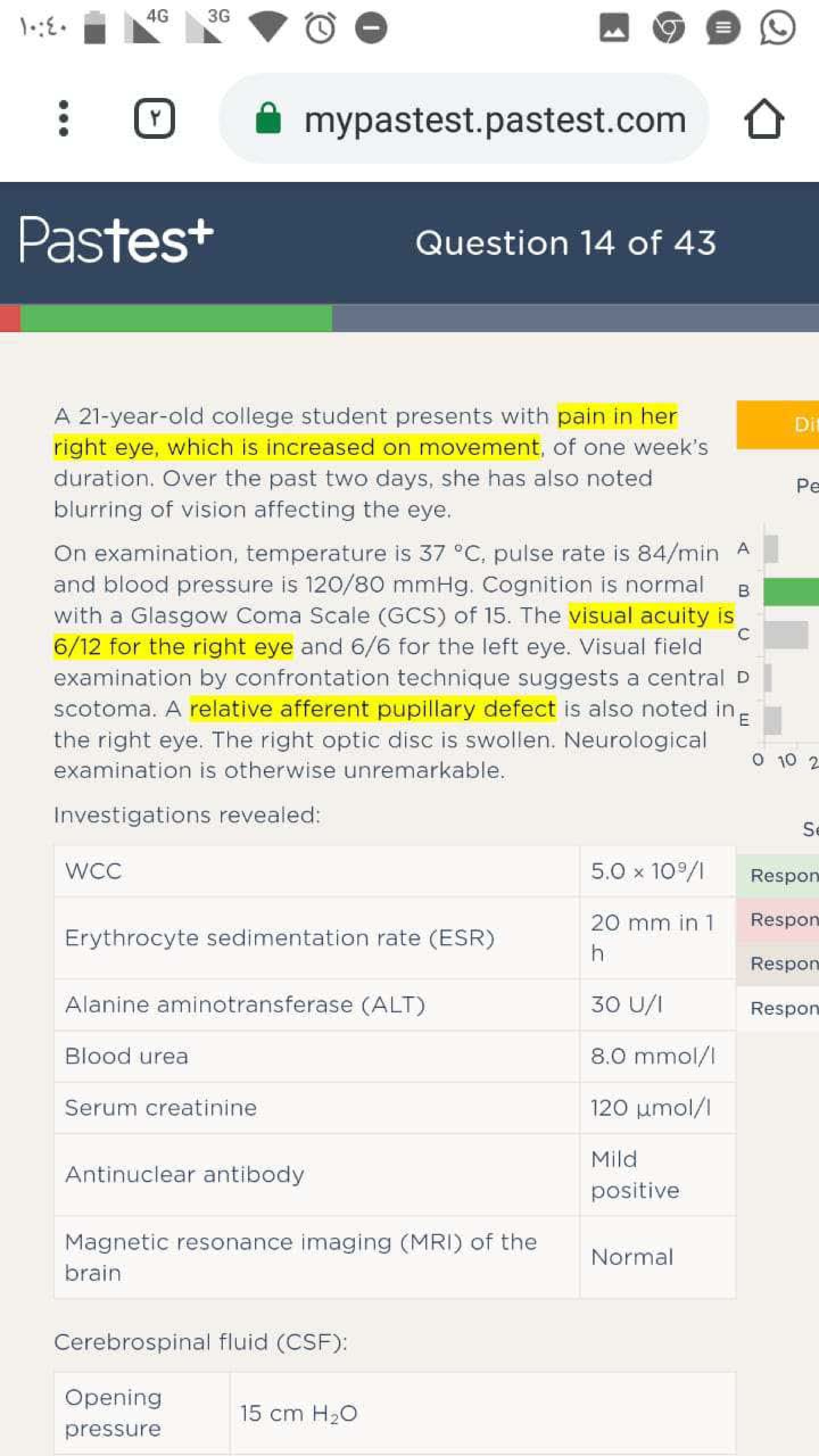

Pastest+

Question 14 of 43

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Blood urea	8.0 mmol/l
Serum creatinine	120 µmol/l
Antinuclear antibody	Mild positive
Magnetic resonance imaging (MRI) of the brain	Normal

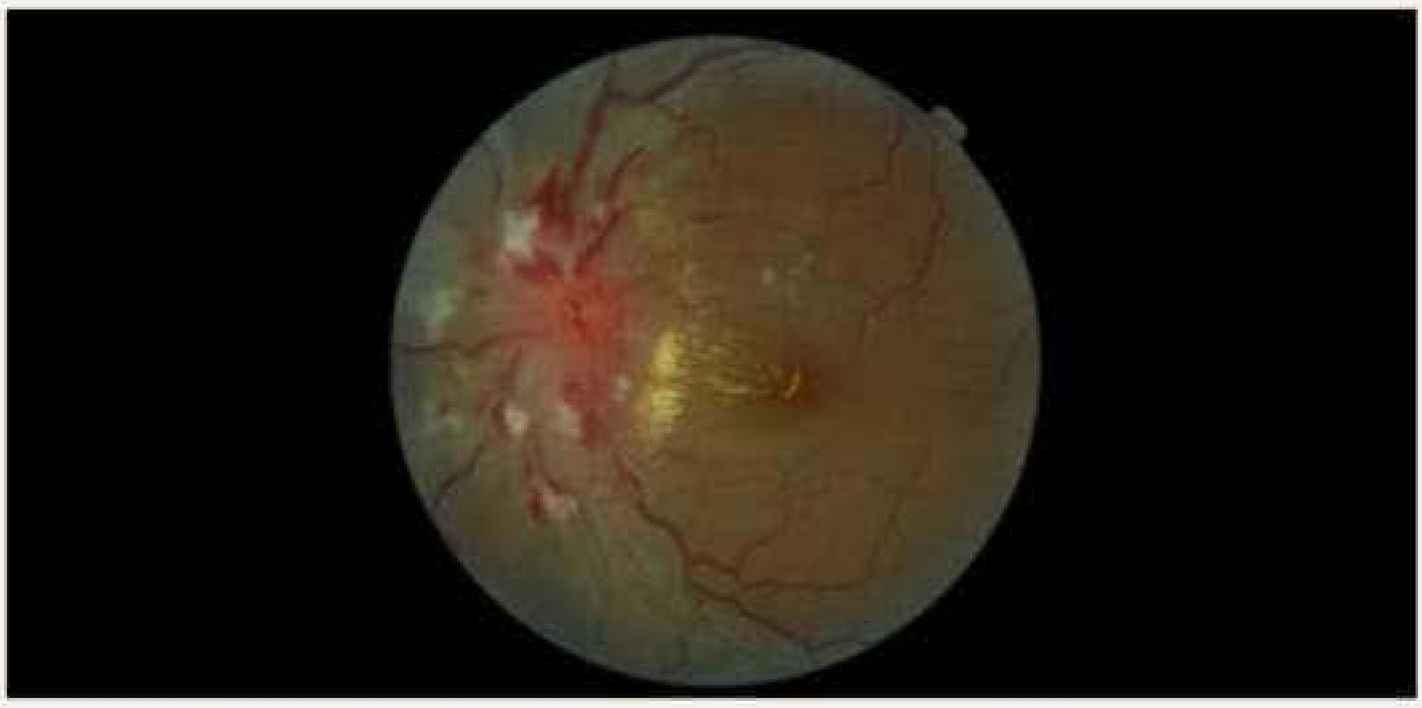
Cerebrospinal fluid (CSF):

Opening pressure	15 cm H_2O

A 32-year-old man comes to the Emergency Department with a severe headache, nausea and vomiting. He admits that he was diagnosed with hypertension some four years earlier but has refused to visit the general practitioner (GP) for follow-up. His brother has end-stage kidney disease.

His blood pressure is 190/110 mmHg, and there are ballotable masses in both flanks. His body mass index (BMI) is 23 kg/m^2.

A retinal photograph is shown below.



Which of the following is the most likely cause of his hypertension?

A	Adrenal carcinoma
B	Cushing syndrome
C	Phaeochromocytoma
D	Polycystic kidney disease (PKD)
E	Reflux nephropathy

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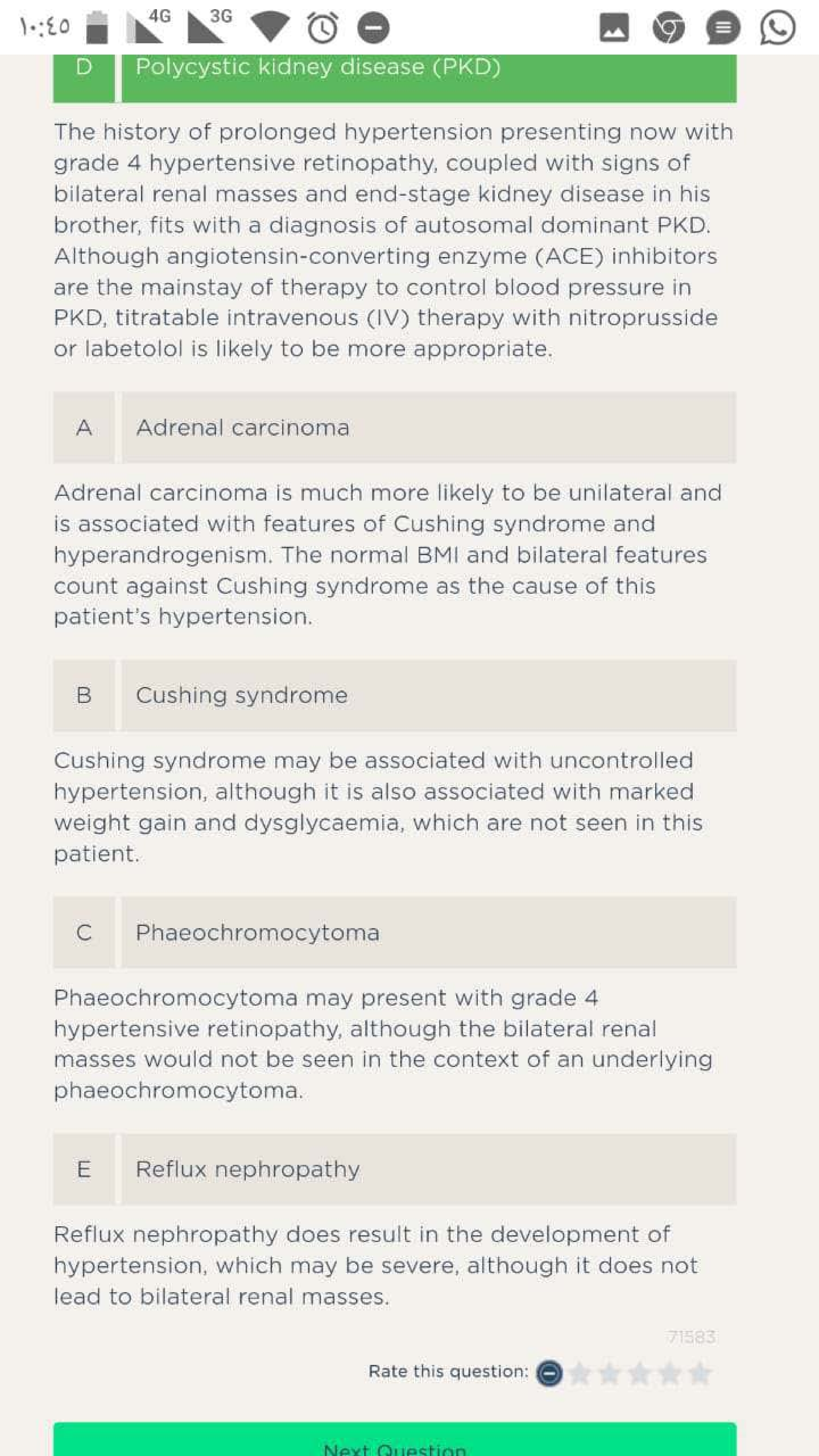

D Polycystic kidney disease (PKD)

The history of prolonged hypertension presenting now with grade 4 hypertensive retinopathy, coupled with signs of bilateral renal masses and end-stage kidney disease in his brother, fits with a diagnosis of autosomal dominant PKD. Although angiotensin-converting enzyme (ACE) inhibitors are the mainstay of therapy to control blood pressure in PKD, titratable intravenous (IV) therapy with nitroprusside or labetolol is likely to be more appropriate.

A Adrenal carcinoma

Adrenal carcinoma is much more likely to be unilateral and is associated with features of Cushing syndrome and hyperandrogenism. The normal BMI and bilateral features count against Cushing syndrome as the cause of this patient's hypertension.

B Cushing syndrome

Cushing syndrome may be associated with uncontrolled hypertension, although it is also associated with marked weight gain and dysglycaemia, which are not seen in this patient.

C Phaeochromocytoma

Phaeochromocytoma may present with grade 4 hypertensive retinopathy, although the bilateral renal masses would not be seen in the context of an underlying phaeochromocytoma.

E Reflux nephropathy

Reflux nephropathy does result in the development of hypertension, which may be severe, although it does not lead to bilateral renal masses.

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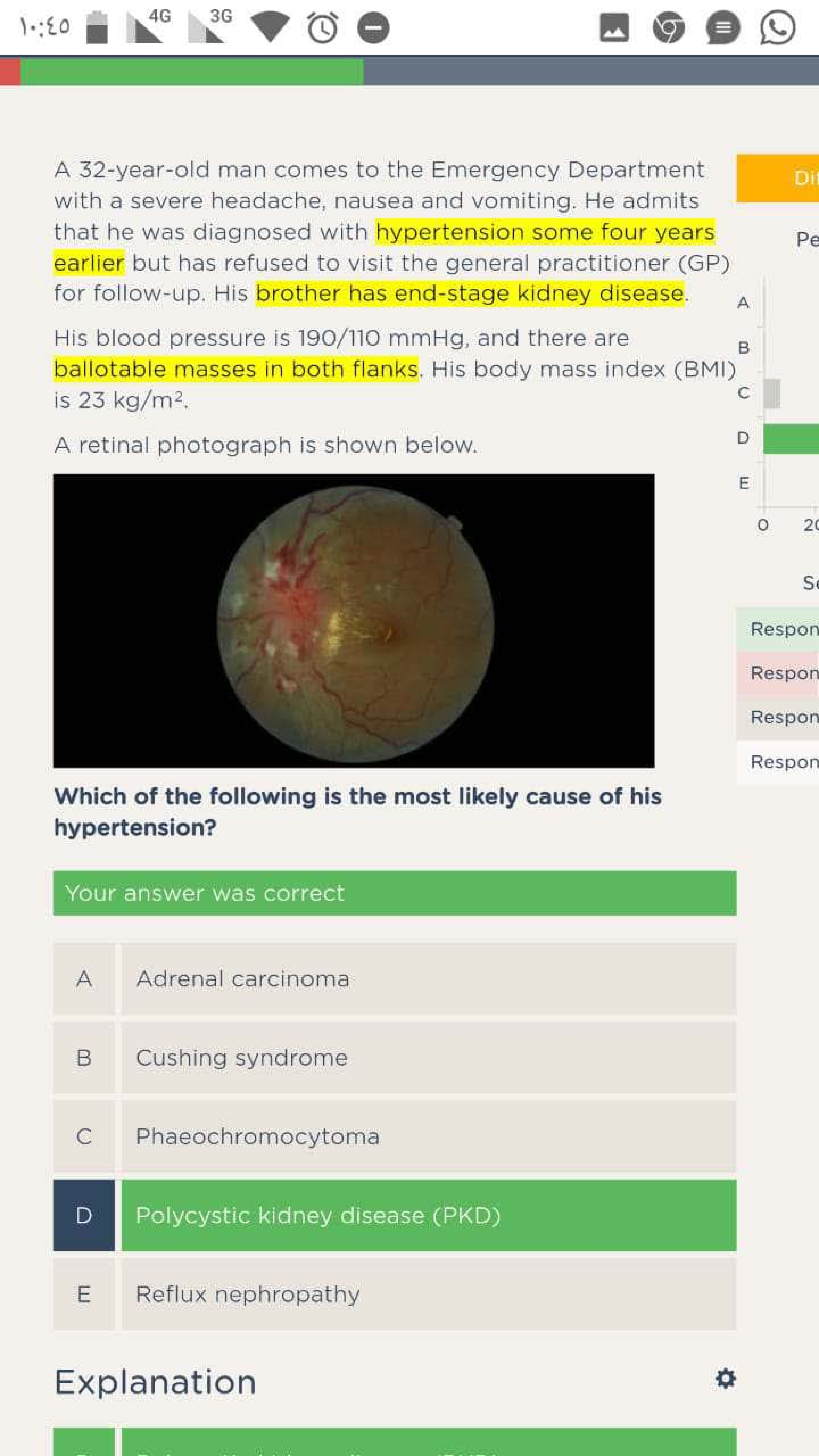


A 32-year-old man comes to the Emergency Department with a severe headache, nausea and vomiting. He admits that he was diagnosed with hypertension some four years earlier but has refused to visit the general practitioner (GP) for follow-up. His brother has end-stage kidney disease.

His blood pressure is 190/110 mmHg, and there are ballotable masses in both flanks. His body mass index (BMI) is 23 kg/m^2.

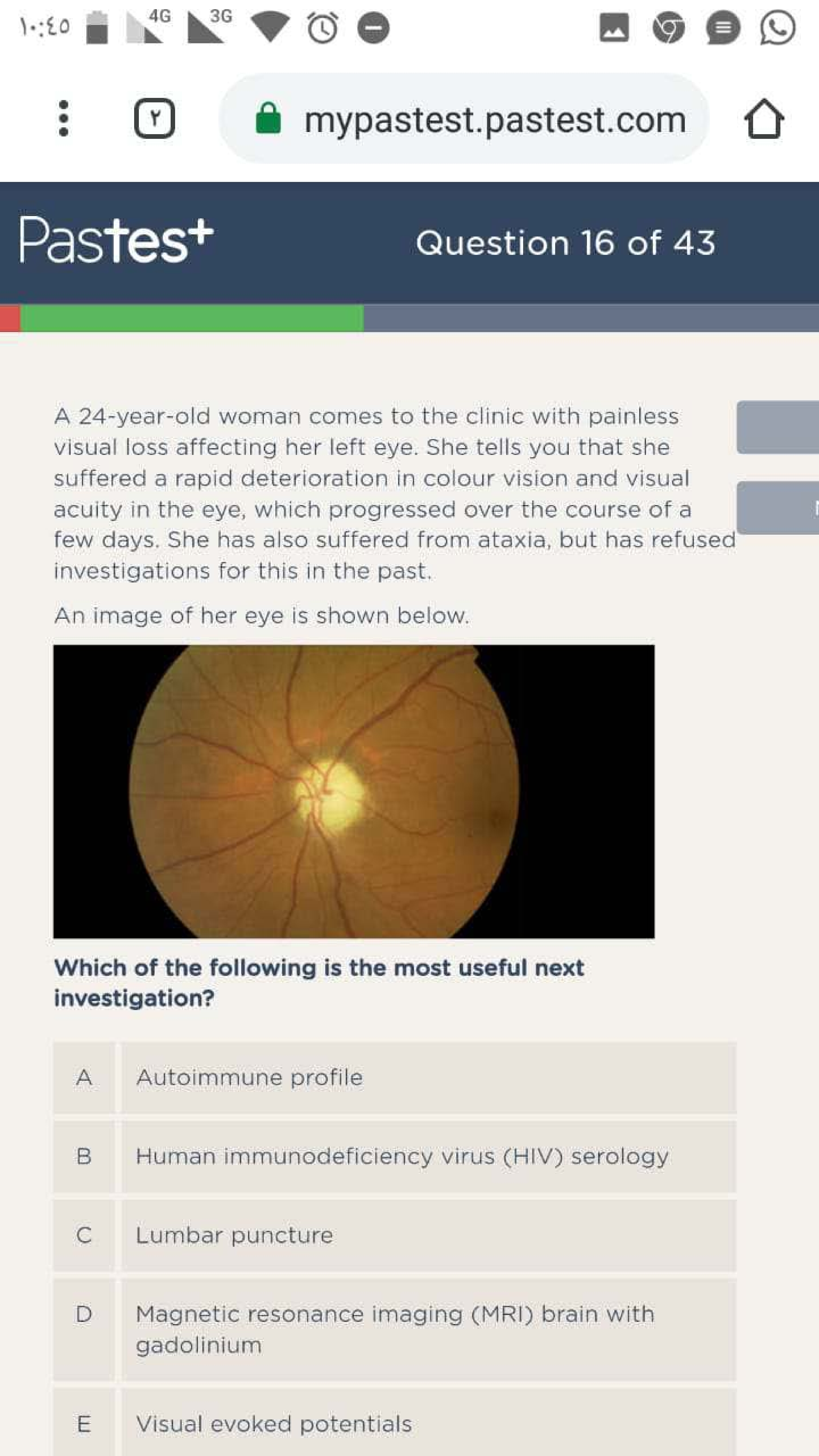
A retinal photograph is shown below.

Which of the following is the most likely cause of his hypertension?

Your answer was correct

A	Adrenal carcinoma
B	Cushing syndrome
C	Phaeochromocytoma
D	Polycystic kidney disease (PKD)
E	Reflux nephropathy

Explanation



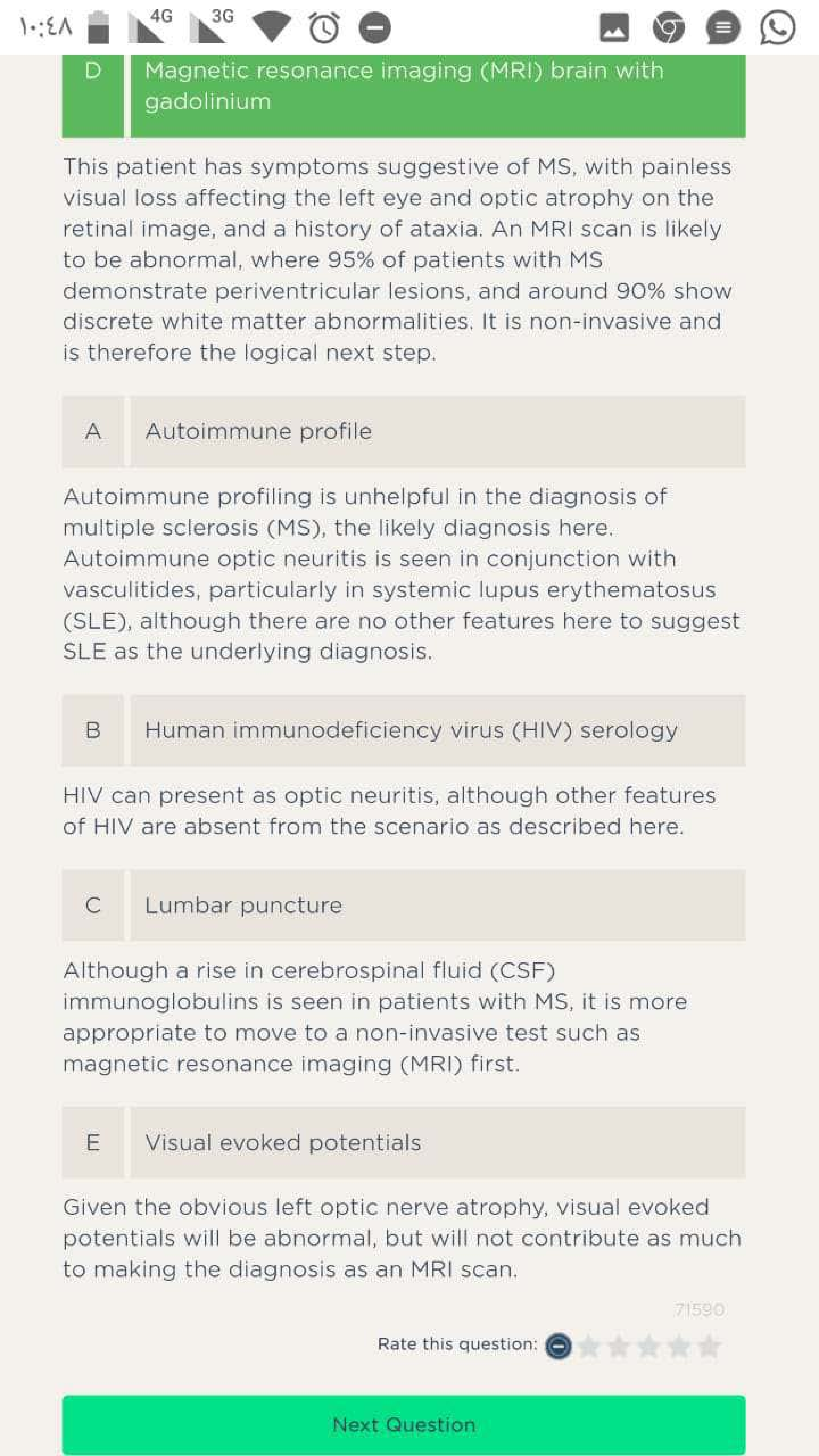
Question 16 of 43

A 24-year-old woman comes to the clinic with painless visual loss affecting her left eye. She tells you that she suffered a rapid deterioration in colour vision and visual acuity in the eye, which progressed over the course of a few days. She has also suffered from ataxia, but has refused investigations for this in the past.

An image of her eye is shown below.

Which of the following is the most useful next investigation?

A	Autoimmune profile
B	Human immunodeficiency virus (HIV) serology
C	Lumbar puncture
D	Magnetic resonance imaging (MRI) brain with gadolinium
E	Visual evoked potentials



D Magnetic resonance imaging (MRI) brain with gadolinium

This patient has symptoms suggestive of MS, with painless visual loss affecting the left eye and optic atrophy on the retinal image, and a history of ataxia. An MRI scan is likely to be abnormal, where 95% of patients with MS demonstrate periventricular lesions, and around 90% show discrete white matter abnormalities. It is non-invasive and is therefore the logical next step.

A Autoimmune profile

Autoimmune profiling is unhelpful in the diagnosis of multiple sclerosis (MS), the likely diagnosis here. Autoimmune optic neuritis is seen in conjunction with vasculitides, particularly in systemic lupus erythematosus (SLE), although there are no other features here to suggest SLE as the underlying diagnosis.

B Human immunodeficiency virus (HIV) serology

HIV can present as optic neuritis, although other features of HIV are absent from the scenario as described here.

C Lumbar puncture

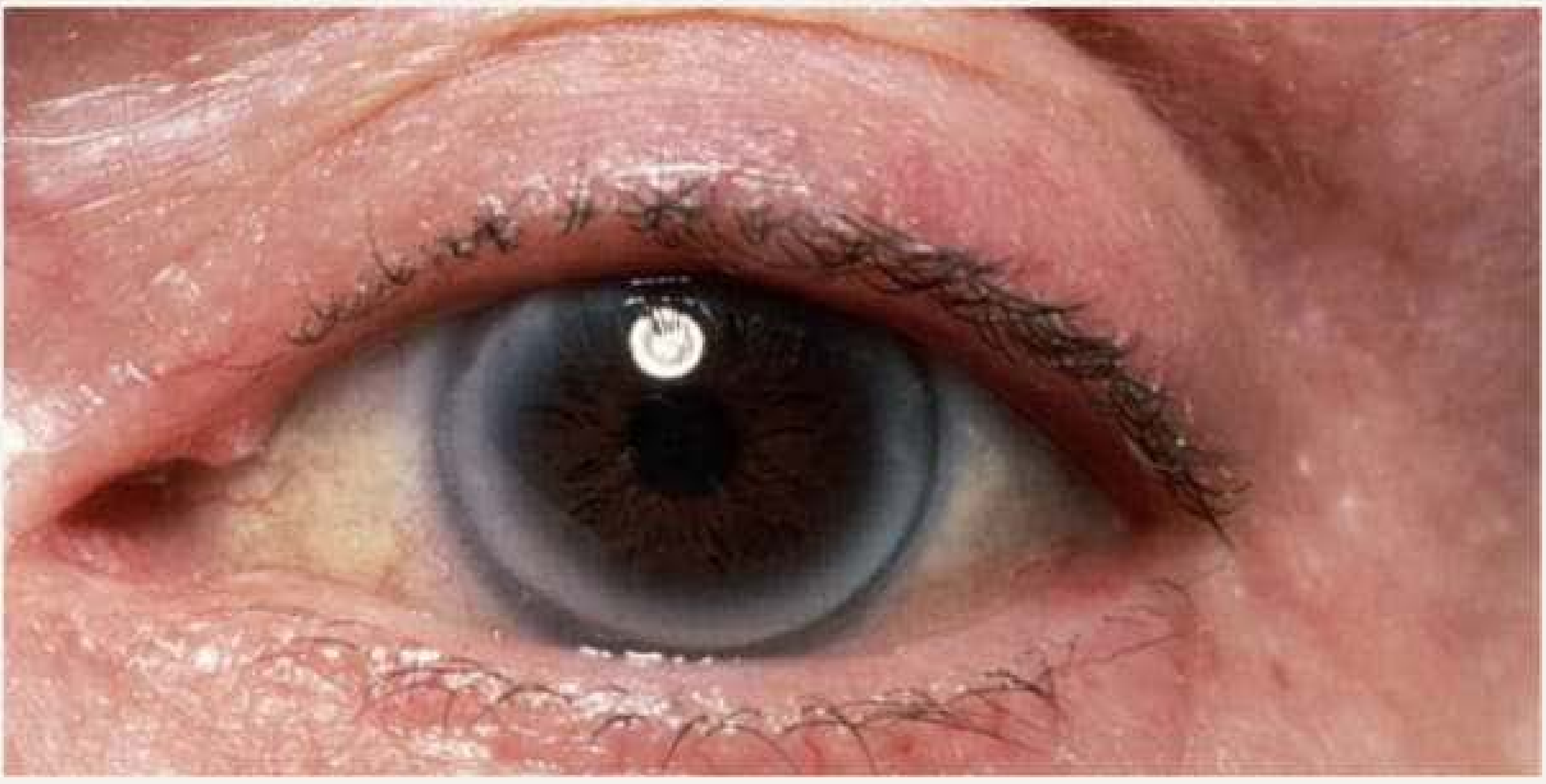
Although a rise in cerebrospinal fluid (CSF) immunoglobulins is seen in patients with MS, it is more appropriate to move to a non-invasive test such as magnetic resonance imaging (MRI) first.

E Visual evoked potentials

Given the obvious left optic nerve atrophy, visual evoked potentials will be abnormal, but will not contribute as much to making the diagnosis as an MRI scan.

71590

A 77-year-old woman presents to the Clinical Pharmacology Clinic for review. Her general practitioner (GP) is concerned because he has noted the eye appearance shown below.



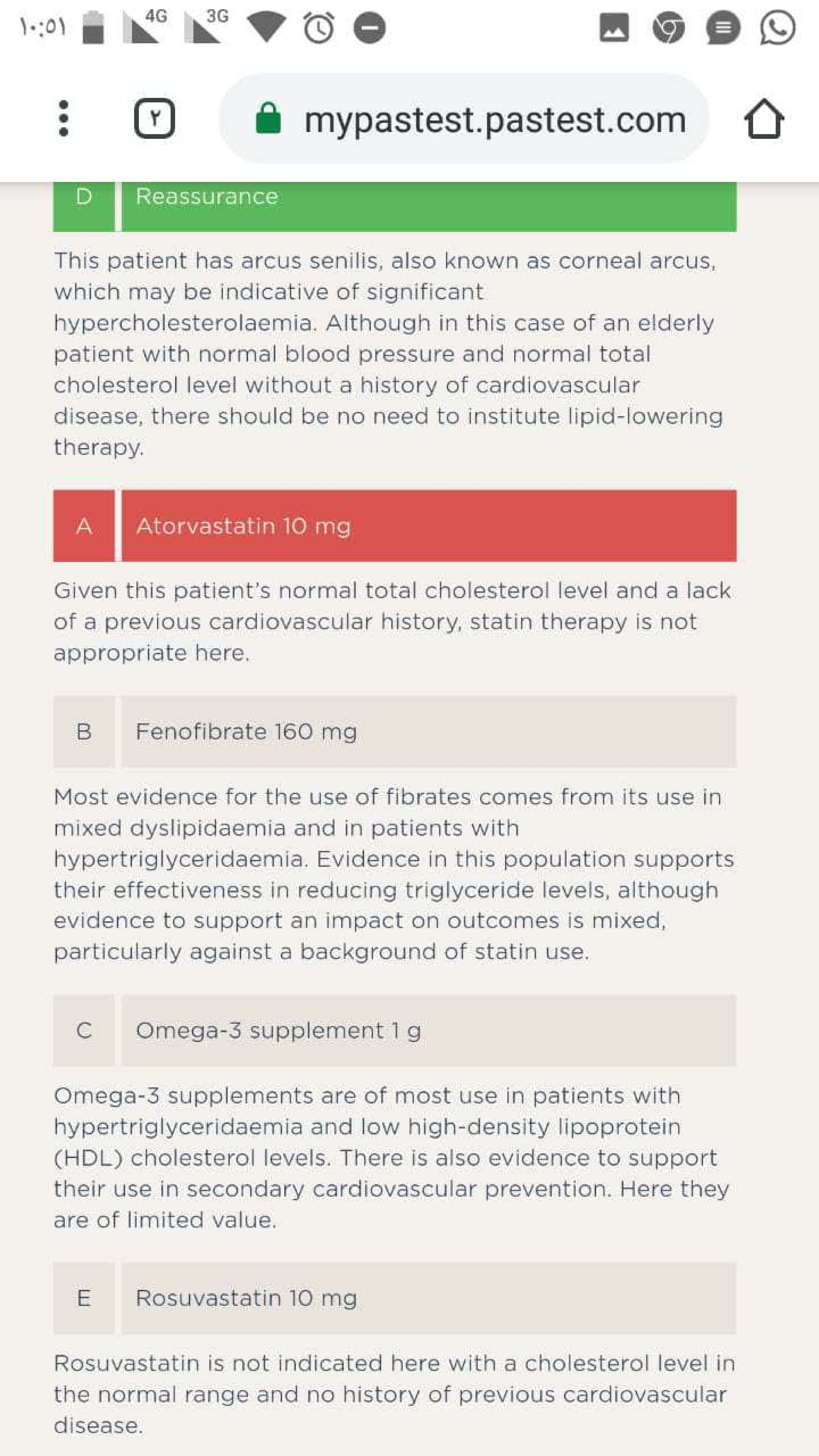
She has no significant past medical history.

Her blood pressure is 122/82 mmHg; her pulse is 70 bpm and regular. Her body mass index (BMI) is 24 kg/m². Her total cholesterol level is 4.5 mmol/l.

Which of the following is the most appropriate intervention?

A	Atorvastatin 10 mg
B	Fenofibrate 160 mg
C	Omega-3 supplement 1 g
D	Reassurance
E	Rosuvastatin 10 mg

71646



D Reassurance

This patient has arcus senilis, also known as corneal arcus, which may be indicative of significant hypercholesterolaemia. Although in this case of an elderly patient with normal blood pressure and normal total cholesterol level without a history of cardiovascular disease, there should be no need to institute lipid-lowering therapy.

A Atorvastatin 10 mg

Given this patient's normal total cholesterol level and a lack of a previous cardiovascular history, statin therapy is not appropriate here.

B Fenofibrate 160 mg

Most evidence for the use of fibrates comes from its use in mixed dyslipidaemia and in patients with hypertriglyceridaemia. Evidence in this population supports their effectiveness in reducing triglyceride levels, although evidence to support an impact on outcomes is mixed, particularly against a background of statin use.

C Omega-3 supplement 1 g

Omega-3 supplements are of most use in patients with hypertriglyceridaemia and low high-density lipoprotein (HDL) cholesterol levels. There is also evidence to support their use in secondary cardiovascular prevention. Here they are of limited value.

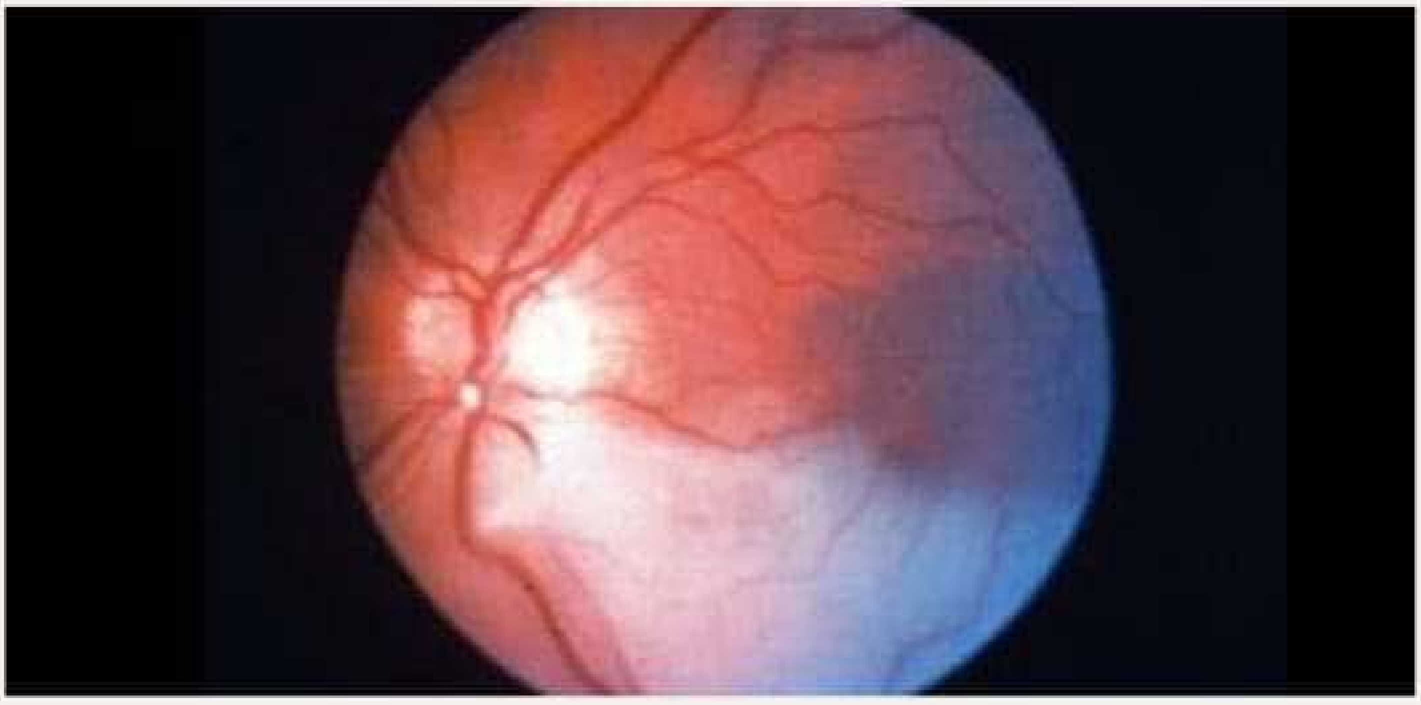
E Rosuvastatin 10 mg

Rosuvastatin is not indicated here with a cholesterol level in the normal range and no history of previous cardiovascular disease.

A 75-year-old woman presents to the Emergency Department with sudden loss of vision affecting the upper field of vision of her left eye. She says it came on suddenly and she is now having difficulty perceiving even light and dark in the upper field of vision.

Over the past few months, she has suffered increasingly frequent temporal headaches, for which she has self-medicated with paracetamol and ibuprofen. Her blood pressure is 158/95 mmHg and her pulse is 75 bpm and regular. She is tender over both temporal arteries.

An image of her eye is shown below.



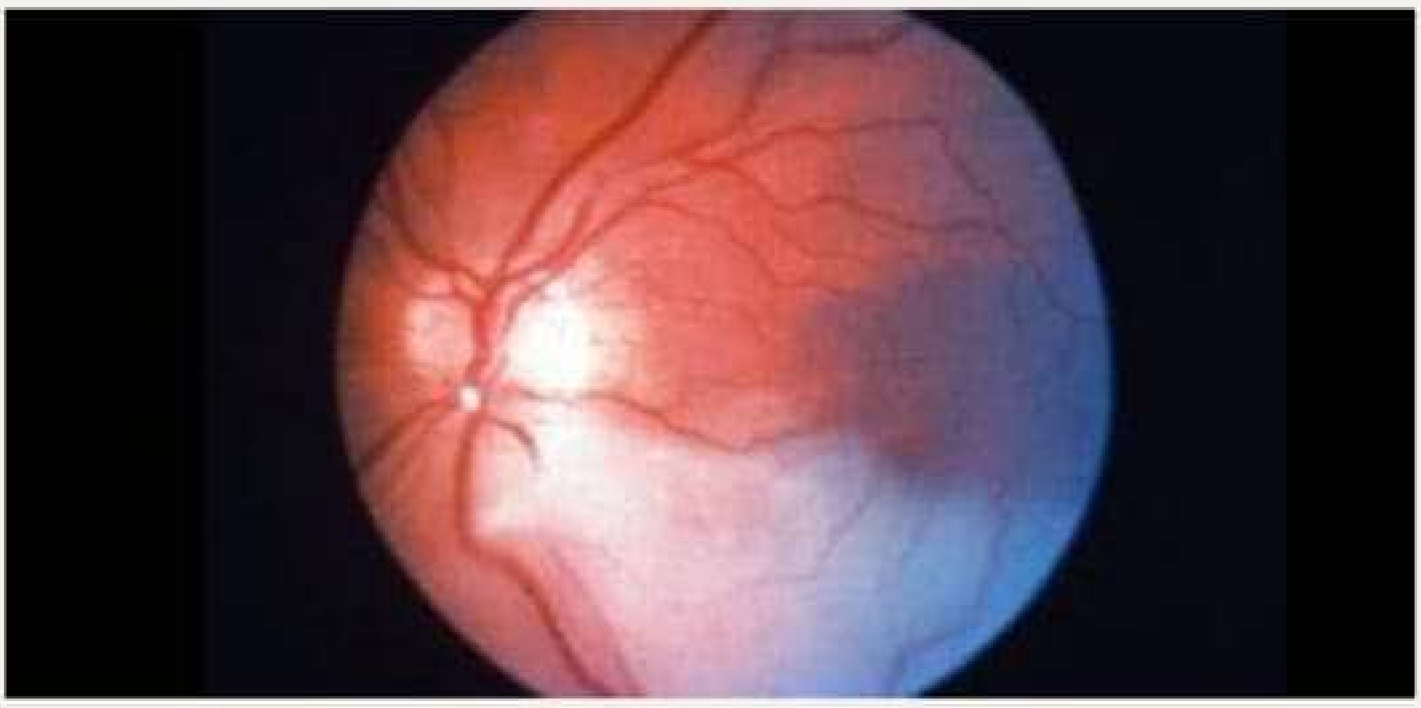
Which of the following is the most useful next investigation?

A	Autoimmune profile
B	24-hour electrocardiogram (ECG) recording
C	Erythrocyte sedimentation rate (ESR)
D	Thrombophilia screen
E	Transoesophageal echocardiogram (ECHO)

A 75-year-old woman presents to the Emergency Department with sudden loss of vision affecting the upper field of vision of her left eye. She says it came on suddenly and she is now having difficulty perceiving even light and dark in the upper field of vision.

Over the past few months, she has suffered increasingly frequent temporal headaches, for which she has self-medicated with paracetamol and ibuprofen. Her blood pressure is 158/95 mmHg and her pulse is 75 bpm and regular. She is tender over both temporal arteries.

An image of her eye is shown below.



Which of the following is the most useful next investigation?

Your answer was correct

A	Autoimmune profile
B	24-hour electrocardiogram (ECG) recording
C	Erythrocyte sedimentation rate (ESR)
D	Thrombophilia screen
E	Transoesophageal echocardiogram (ECHO)

Explanation

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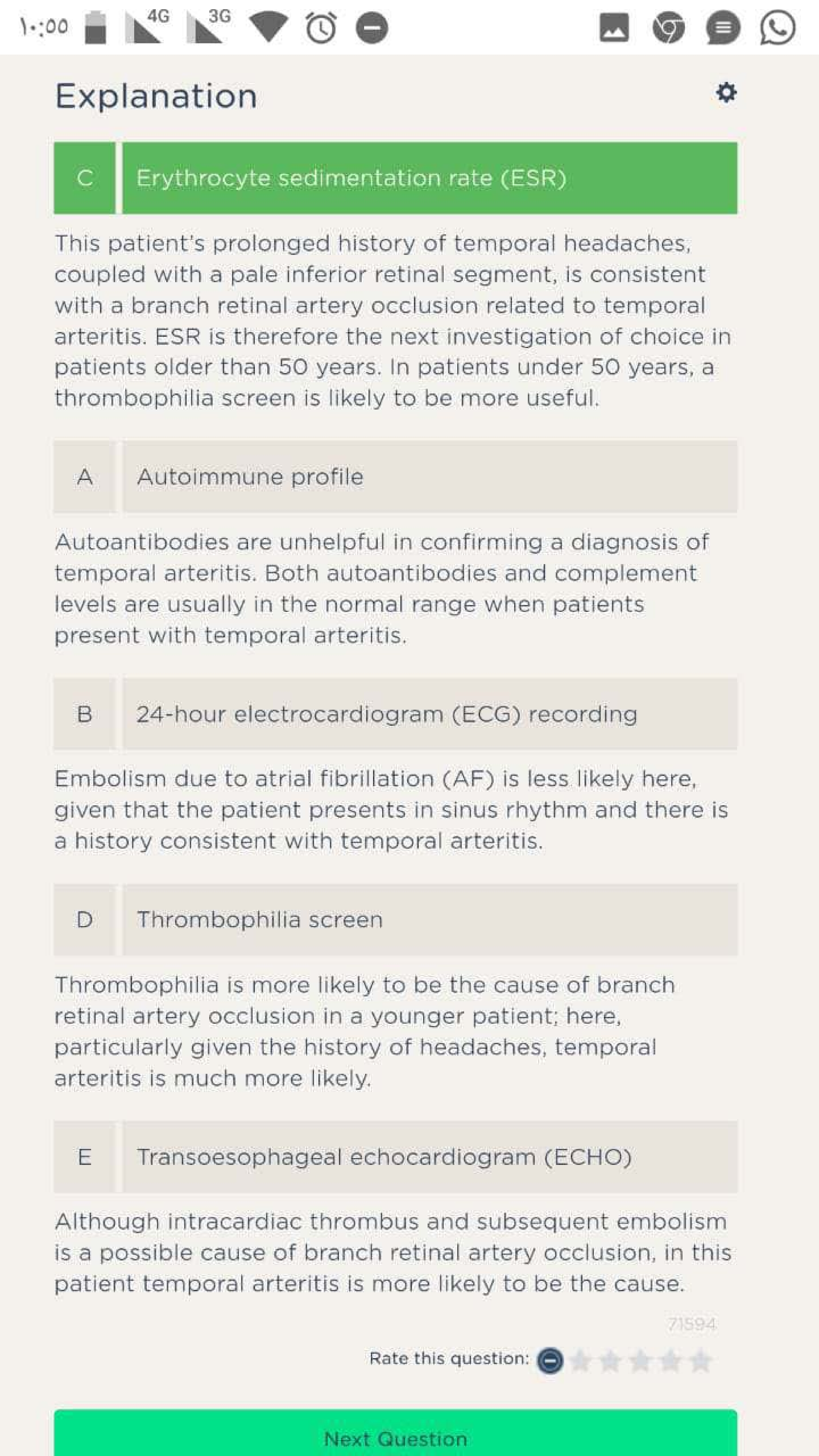

Explanation

C Erythrocyte sedimentation rate (ESR)

This patient's prolonged history of temporal headaches, coupled with a pale inferior retinal segment, is consistent with a branch retinal artery occlusion related to temporal arteritis. ESR is therefore the next investigation of choice in patients older than 50 years. In patients under 50 years, a thrombophilia screen is likely to be more useful.

A Autoimmune profile

Autoantibodies are unhelpful in confirming a diagnosis of temporal arteritis. Both autoantibodies and complement levels are usually in the normal range when patients present with temporal arteritis.

B 24-hour electrocardiogram (ECG) recording

Embolism due to atrial fibrillation (AF) is less likely here, given that the patient presents in sinus rhythm and there is a history consistent with temporal arteritis.

D Thrombophilia screen

Thrombophilia is more likely to be the cause of branch retinal artery occlusion in a younger patient; here, particularly given the history of headaches, temporal arteritis is much more likely.

E Transoesophageal echocardiogram (ECHO)

Although intracardiac thrombus and subsequent embolism is a possible cause of branch retinal artery occlusion, in this patient temporal arteritis is more likely to be the cause.

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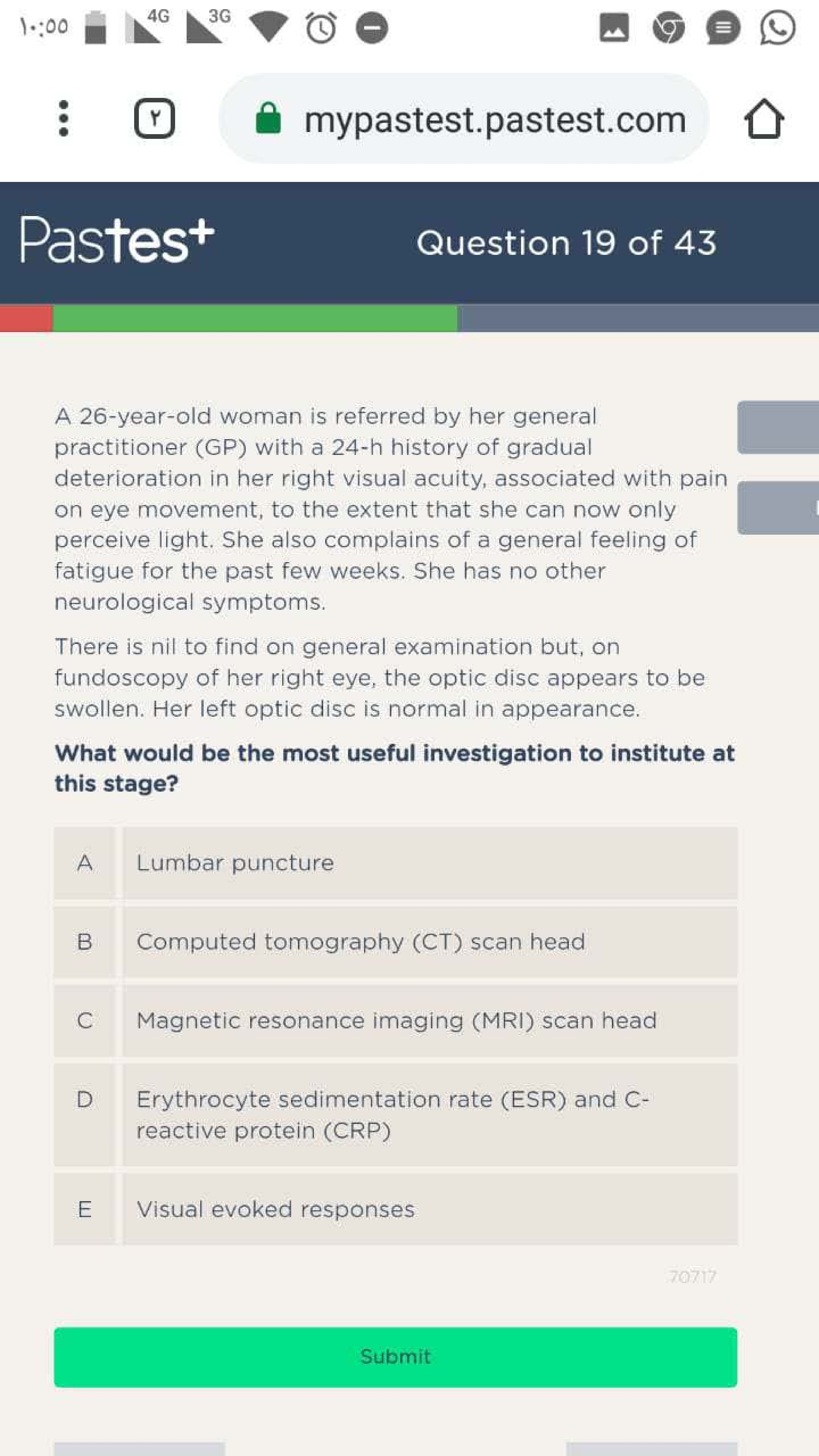


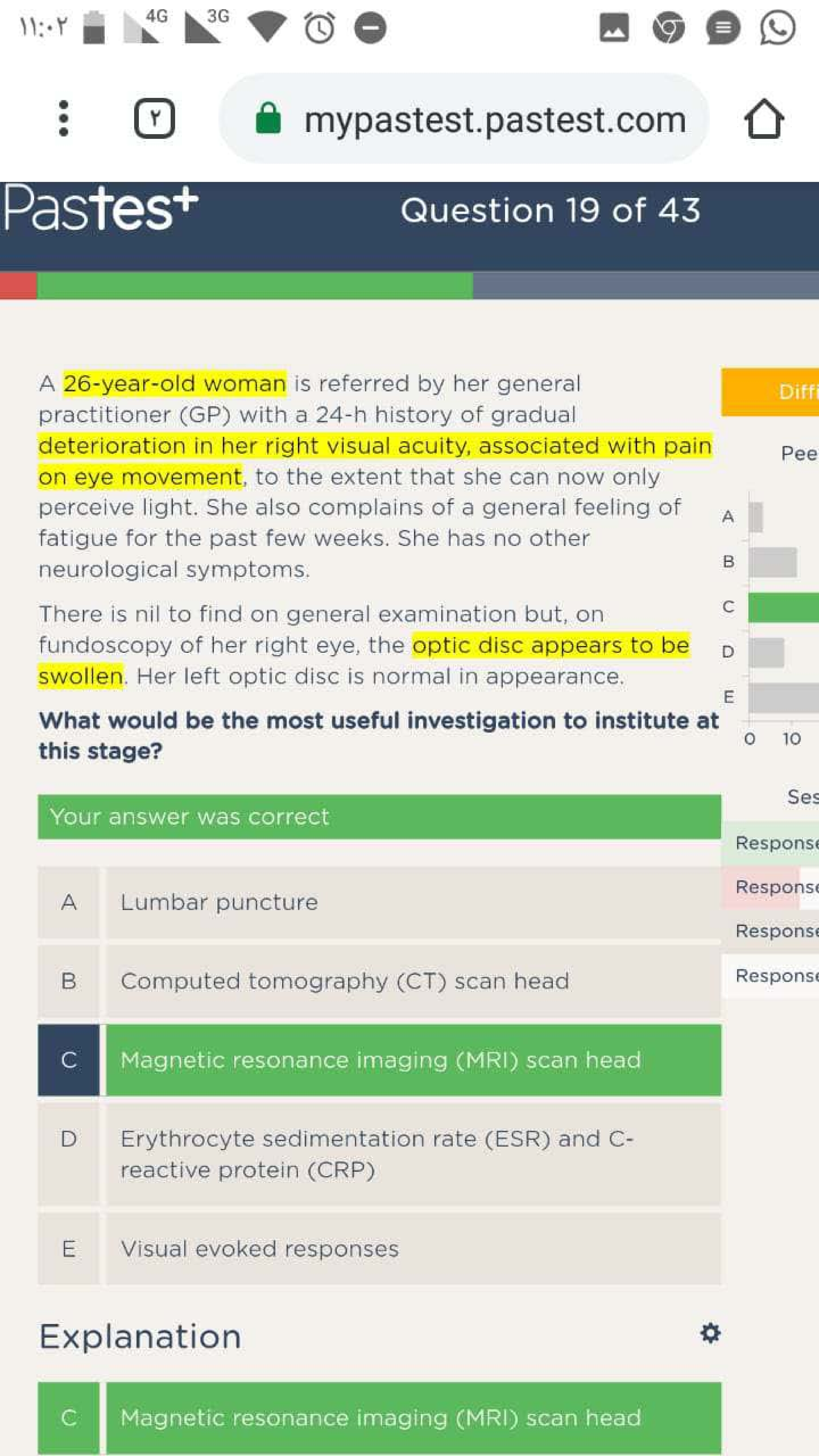
A 26-year-old woman is referred by her general practitioner (GP) with a 24-h history of gradual deterioration in her right visual acuity, associated with pain on eye movement, to the extent that she can now only perceive light. She also complains of a general feeling of fatigue for the past few weeks. She has no other neurological symptoms.

There is nil to find on general examination but, on fundoscopy of her right eye, the optic disc appears to be swollen. Her left optic disc is normal in appearance.

What would be the most useful investigation to institute at this stage?

A	Lumbar puncture
B	Computed tomography (CT) scan head
C	Magnetic resonance imaging (MRI) scan head
D	Erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP)
E	Visual evoked responses

70717



Question 19 of 43

A 26-year-old woman is referred by her general practitioner (GP) with a 24-h history of gradual deterioration in her right visual acuity, associated with pain on eye movement, to the extent that she can now only perceive light. She also complains of a general feeling of fatigue for the past few weeks. She has no other neurological symptoms.

There is nil to find on general examination but, on fundoscopy of her right eye, the optic disc appears to be swollen. Her left optic disc is normal in appearance.

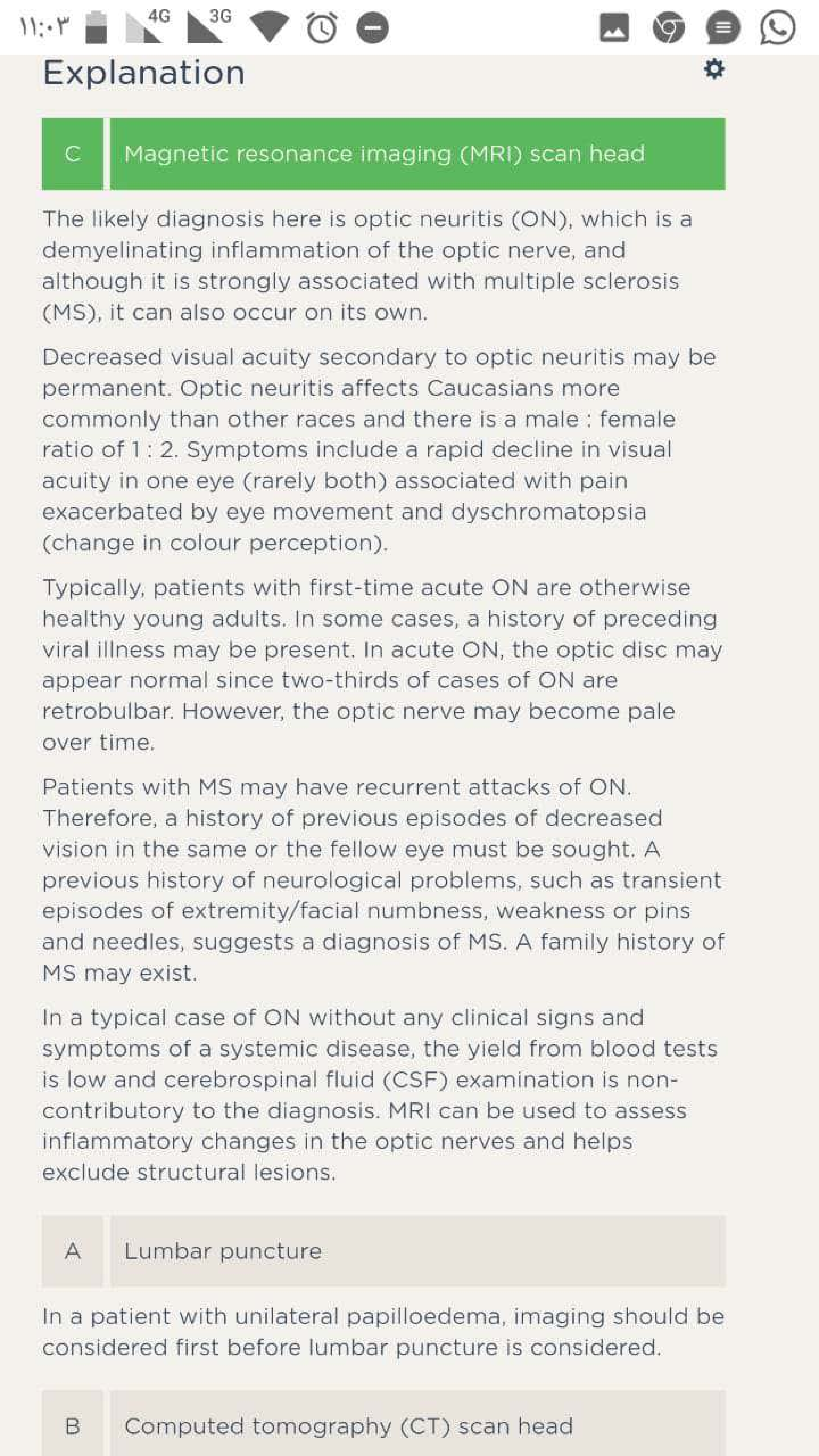
What would be the most useful investigation to institute at this stage?

Your answer was correct

A	Lumbar puncture
B	Computed tomography (CT) scan head
C	Magnetic resonance imaging (MRI) scan head
D	Erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP)
E	Visual evoked responses

Explanation

C Magnetic resonance imaging (MRI) scan head



Explanation

C Magnetic resonance imaging (MRI) scan head

The likely diagnosis here is optic neuritis (ON), which is a demyelinating inflammation of the optic nerve, and although it is strongly associated with multiple sclerosis (MS), it can also occur on its own.

Decreased visual acuity secondary to optic neuritis may be permanent. Optic neuritis affects Caucasians more commonly than other races and there is a male : female ratio of 1 : 2. Symptoms include a rapid decline in visual acuity in one eye (rarely both) associated with pain exacerbated by eye movement and dyschromatopsia (change in colour perception).

Typically, patients with first-time acute ON are otherwise healthy young adults. In some cases, a history of preceding viral illness may be present. In acute ON, the optic disc may appear normal since two-thirds of cases of ON are retrobulbar. However, the optic nerve may become pale over time.

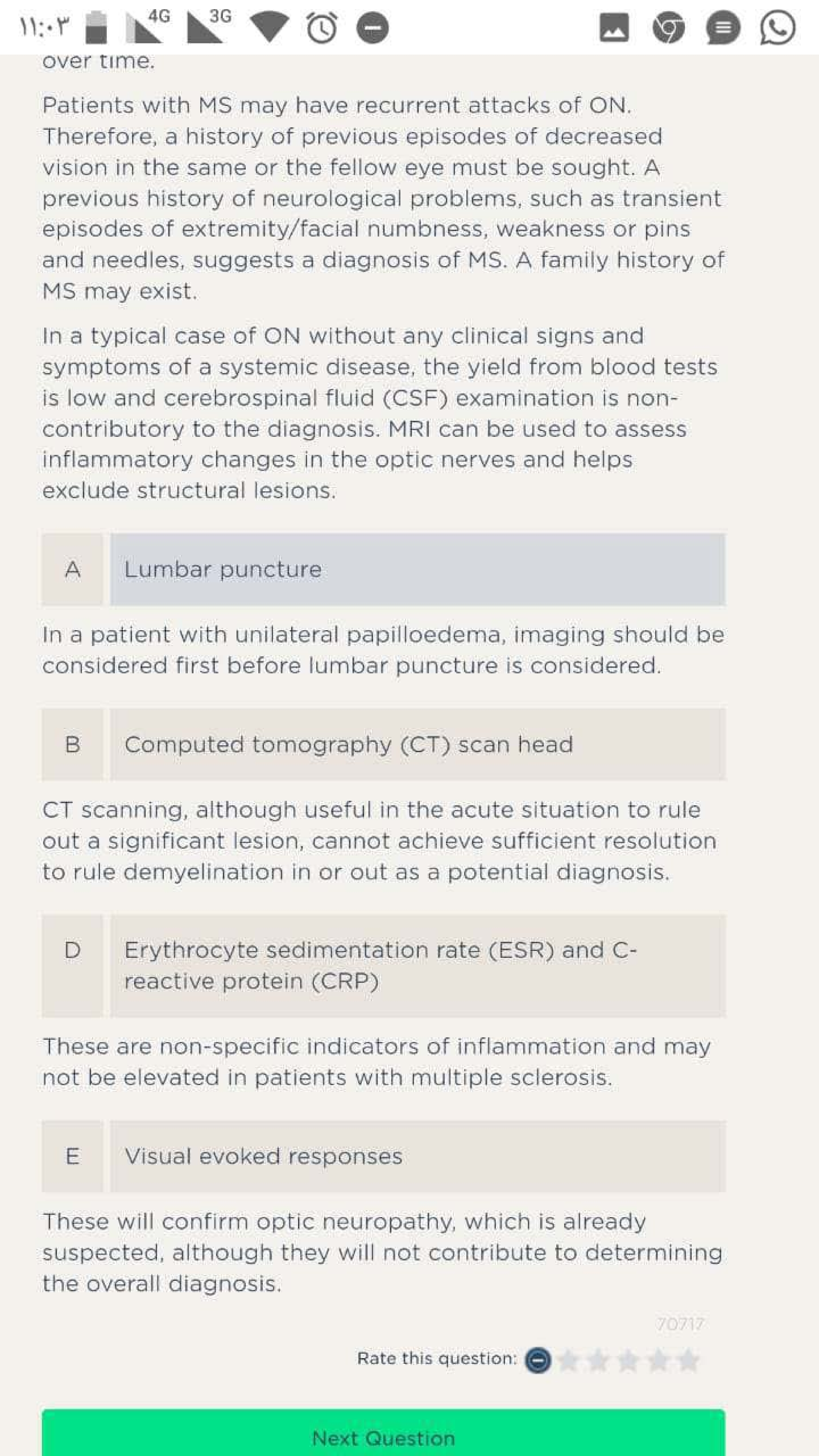
Patients with MS may have recurrent attacks of ON. Therefore, a history of previous episodes of decreased vision in the same or the fellow eye must be sought. A previous history of neurological problems, such as transient episodes of extremity/facial numbness, weakness or pins and needles, suggests a diagnosis of MS. A family history of MS may exist.

In a typical case of ON without any clinical signs and symptoms of a systemic disease, the yield from blood tests is low and cerebrospinal fluid (CSF) examination is non-contributory to the diagnosis. MRI can be used to assess inflammatory changes in the optic nerves and helps exclude structural lesions.

A Lumbar puncture

In a patient with unilateral papilloedema, imaging should be considered first before lumbar puncture is considered.

B Computed tomography (CT) scan head



over time.

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In a typical case of ON without any clinical signs and symptoms of a systemic disease, the yield from blood tests is low and cerebrospinal fluid (CSF) examination is non-contributory to the diagnosis. MRI can be used to assess inflammatory changes in the optic nerves and helps exclude structural lesions.

A	Lumbar puncture

In a patient with unilateral papilloedema, imaging should be considered first before lumbar puncture is considered.

B	Computed tomography (CT) scan head

CT scanning, although useful in the acute situation to rule out a significant lesion, cannot achieve sufficient resolution to rule demyelination in or out as a potential diagnosis.

D	Erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP)

These are non-specific indicators of inflammation and may not be elevated in patients with multiple sclerosis.

E	Visual evoked responses

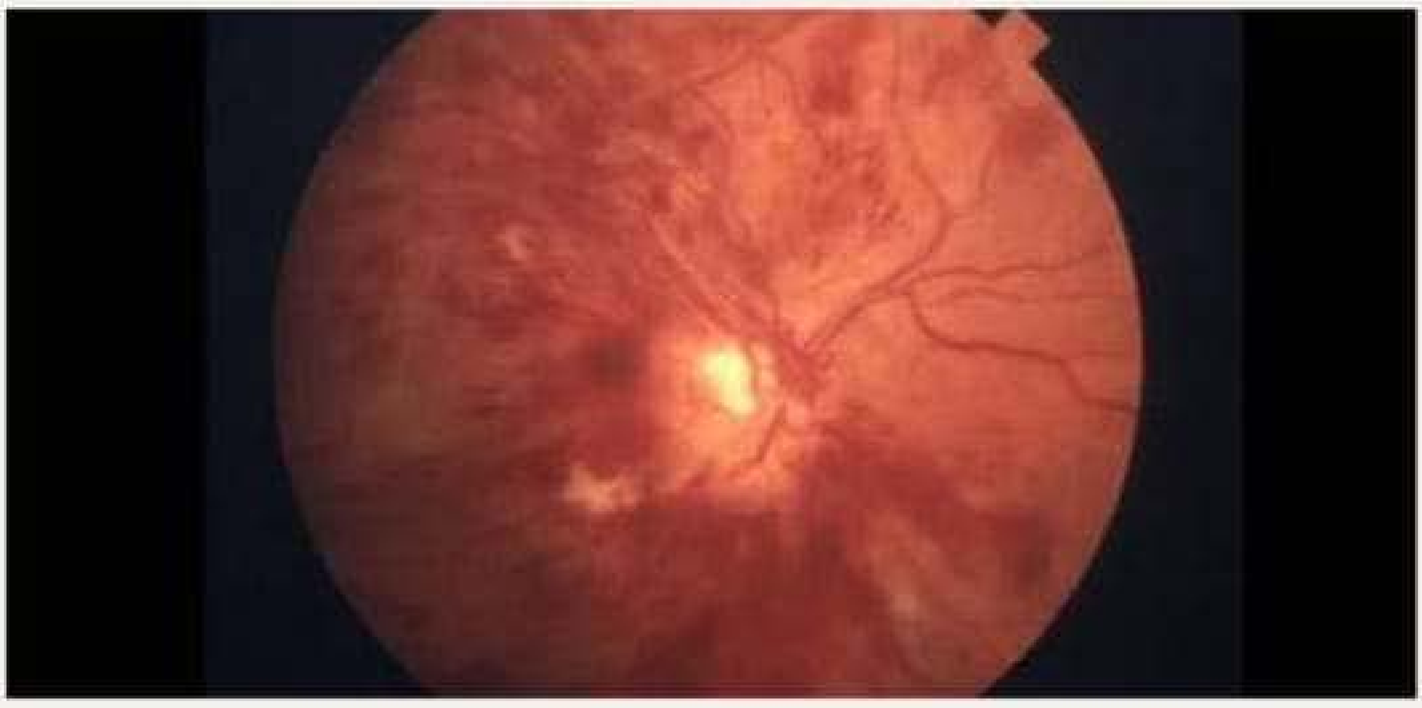
These will confirm optic neuropathy, which is already suspected, although they will not contribute to determining the overall diagnosis.

70717

A 48-year-old woman presents to the Emergency Department with sudden-onset, painless visual loss affecting her right eye. She awoke from sleep to find that she could only perceive light and dark and was unable to drive to work because of this.

She has a history of recurrent miscarriage, although she has gone on to have one healthy child. Her medical history is otherwise unremarkable. She is anxious and has a blood pressure of 154/89 mmHg; her pulse is 78 bpm and regular.

A picture of her right retina is shown below.



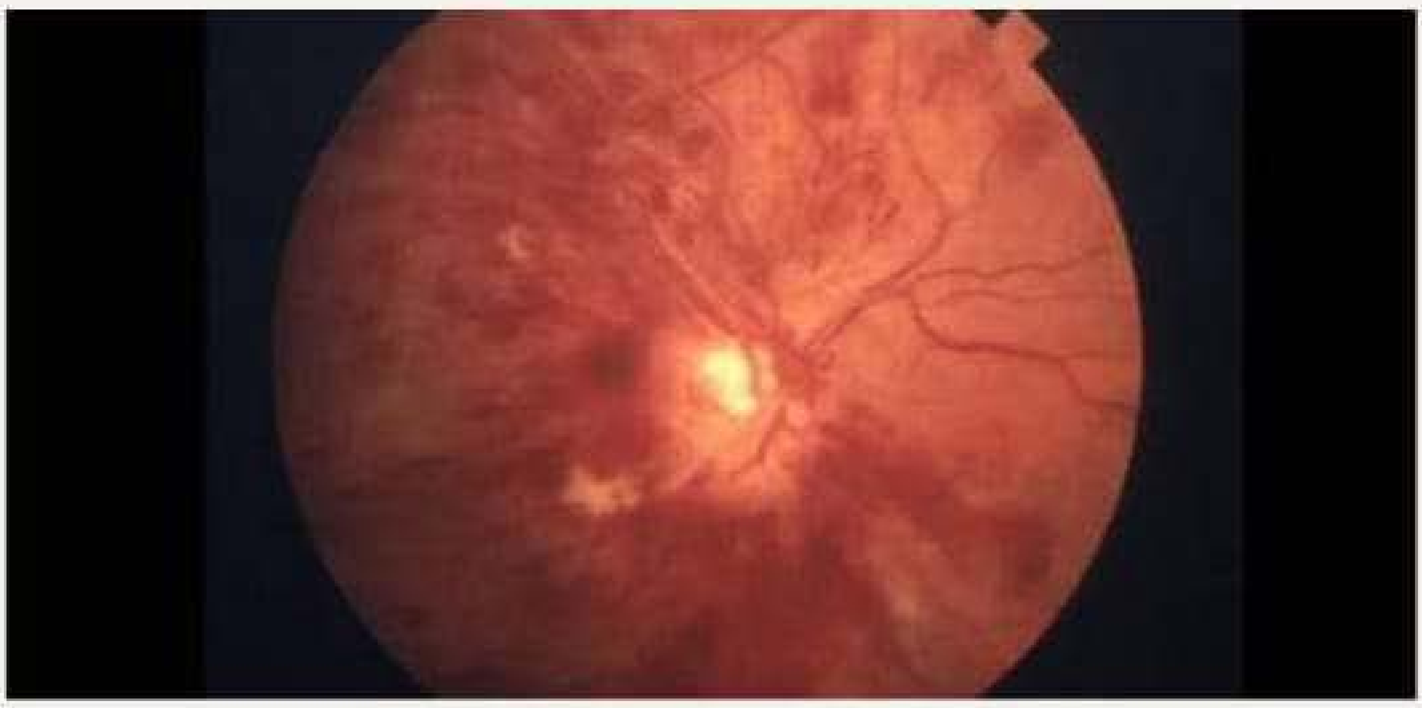
Which of the following is the most useful investigation?

A	Carotid angiography
B	Computed tomography (CT) renal angiogram
C	Intraocular pressure measurement
D	Thrombophilia screen
E	Ultrasound of both kidneys

A 48-year-old woman presents to the Emergency Department with sudden-onset, painless visual loss affecting her right eye. She awoke from sleep to find that she could only perceive light and dark and was unable to drive to work because of this.

She has a history of recurrent miscarriage, although she has gone on to have one healthy child. Her medical history is otherwise unremarkable. She is anxious and has a blood pressure of 154/89 mmHg; her pulse is 78 bpm and regular.

A picture of her right retina is shown below.



Which of the following is the most useful investigation?

Your answer was correct

A	Carotid angiography
B	Computed tomography (CT) renal angiogram
C	Intraocular pressure measurement
D	Thrombophilia screen
E	Ultrasound of both kidneys

Explanation

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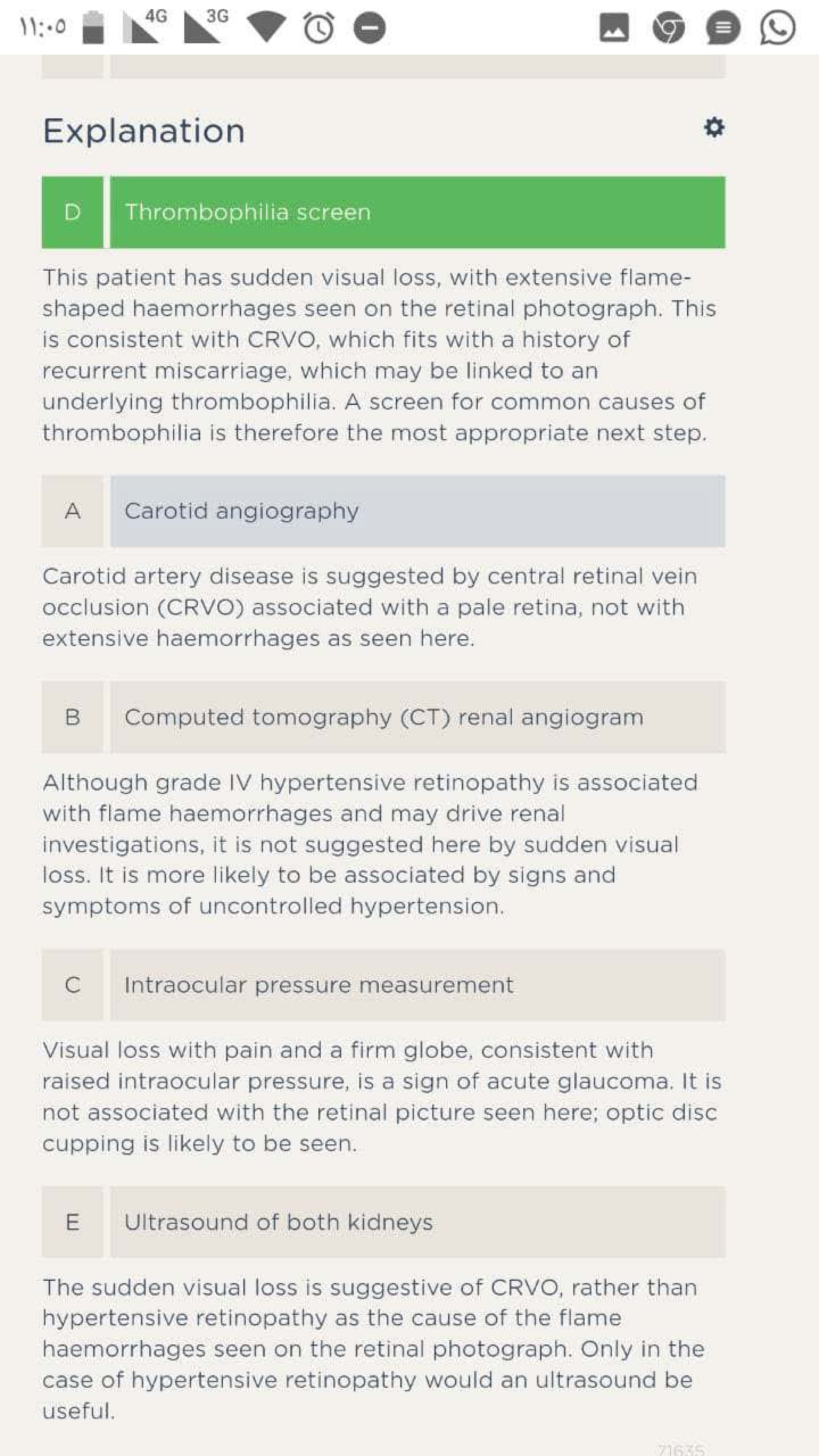

Explanation

D	Thrombophilia screen

This patient has sudden visual loss, with extensive flame-shaped haemorrhages seen on the retinal photograph. This is consistent with CRVO, which fits with a history of recurrent miscarriage, which may be linked to an underlying thrombophilia. A screen for common causes of thrombophilia is therefore the most appropriate next step.

A	Carotid angiography

Carotid artery disease is suggested by central retinal vein occlusion (CRVO) associated with a pale retina, not with extensive haemorrhages as seen here.

B	Computed tomography (CT) renal angiogram

Although grade IV hypertensive retinopathy is associated with flame haemorrhages and may drive renal investigations, it is not suggested here by sudden visual loss. It is more likely to be associated by signs and symptoms of uncontrolled hypertension.

C	Intraocular pressure measurement

Visual loss with pain and a firm globe, consistent with raised intraocular pressure, is a sign of acute glaucoma. It is not associated with the retinal picture seen here; optic disc cupping is likely to be seen.

E	Ultrasound of both kidneys

The sudden visual loss is suggestive of CRVO, rather than hypertensive retinopathy as the cause of the flame haemorrhages seen on the retinal photograph. Only in the case of hypertensive retinopathy would an ultrasound be useful.

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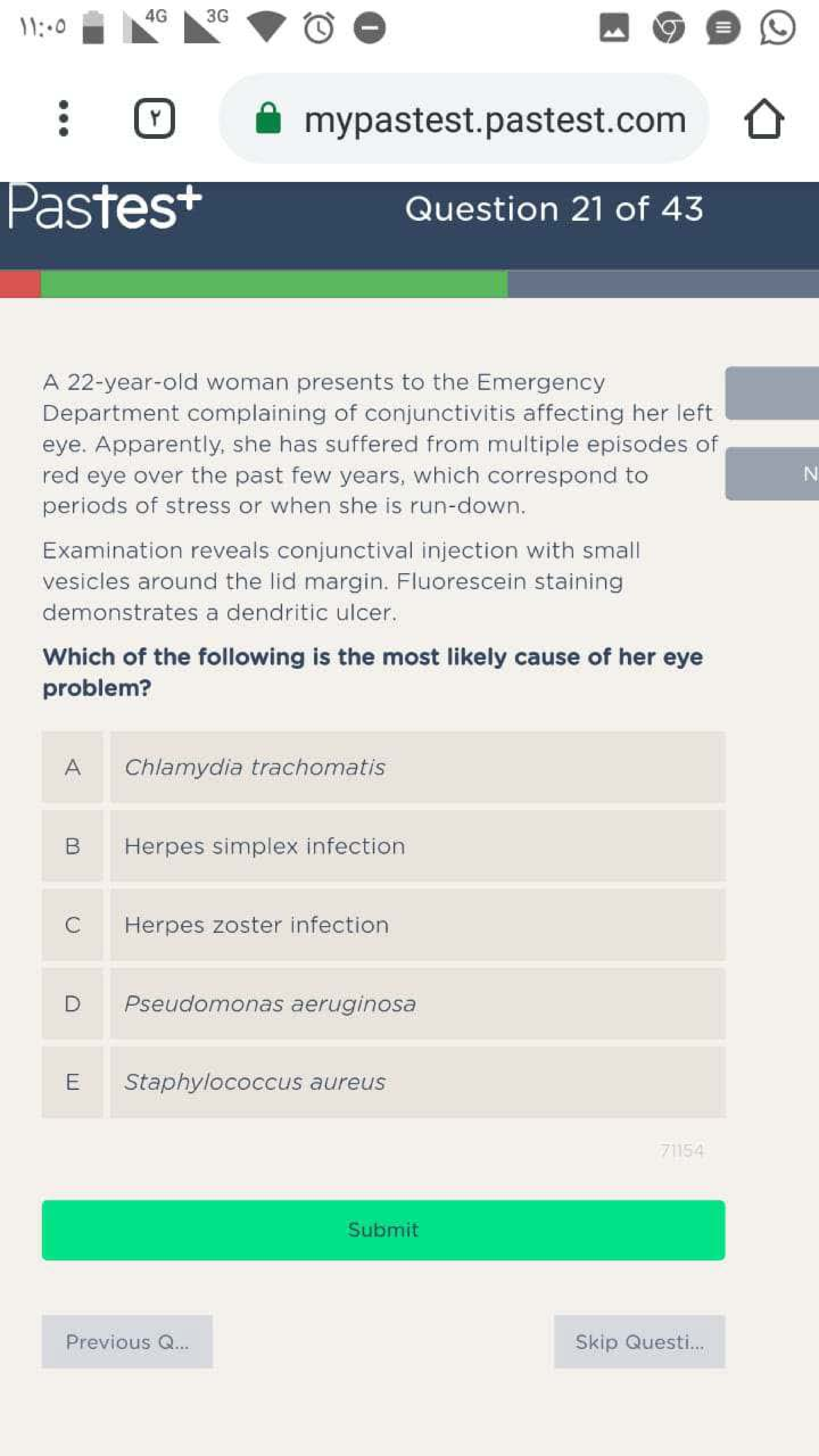


Question 21 of 43

A 22-year-old woman presents to the Emergency Department complaining of conjunctivitis affecting her left eye. Apparently, she has suffered from multiple episodes of red eye over the past few years, which correspond to periods of stress or when she is run-down.

Examination reveals conjunctival injection with small vesicles around the lid margin. Fluorescein staining demonstrates a dendritic ulcer.

Which of the following is the most likely cause of her eye problem?

A *Chlamydia trachomatis*

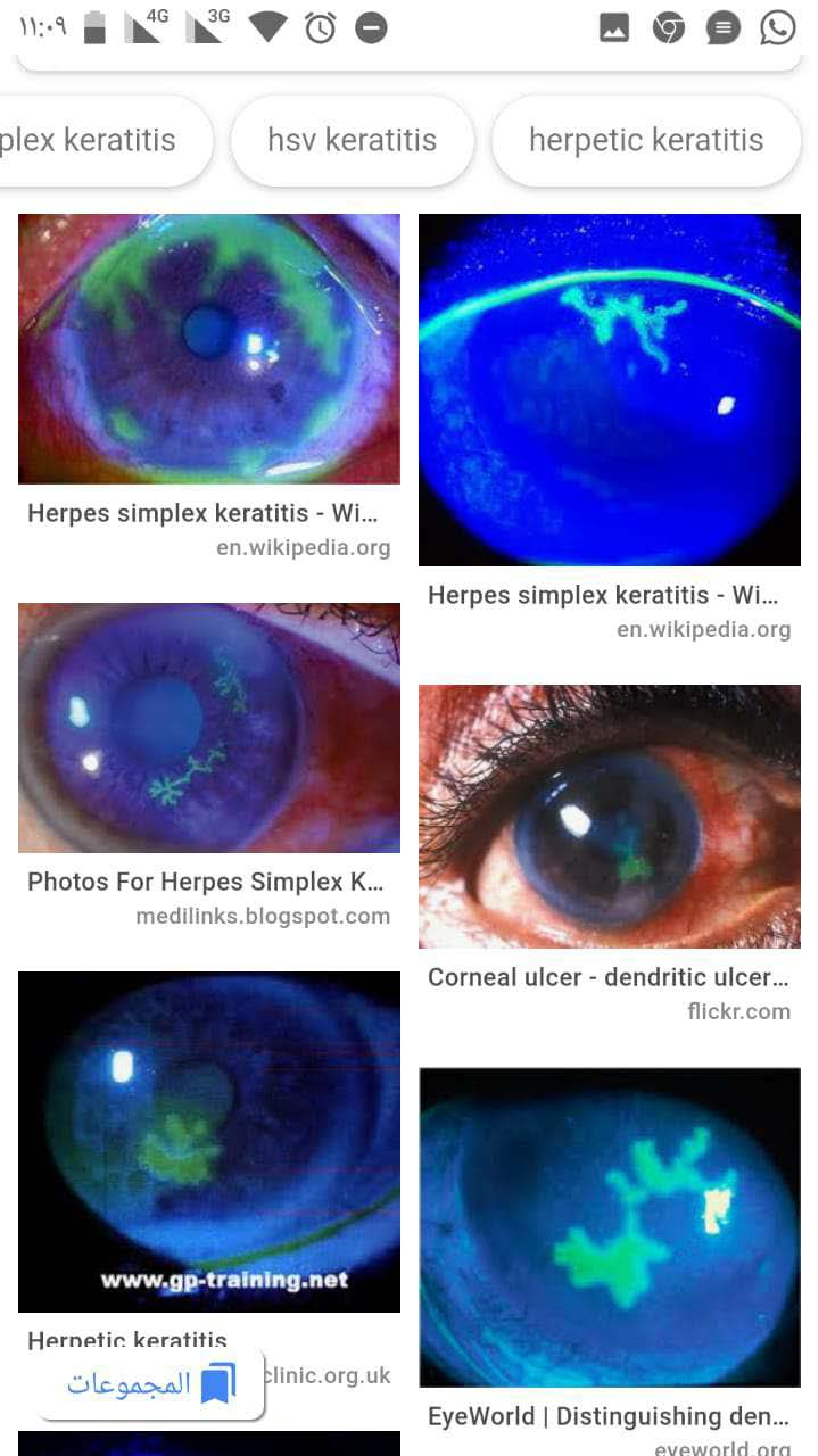
B Herpes simplex infection

C Herpes zoster infection

D *Pseudomonas aeruginosa*

E *Staphylococcus aureus*

71154



Herpes simplex keratitis - Wi...
en.wikipedia.org

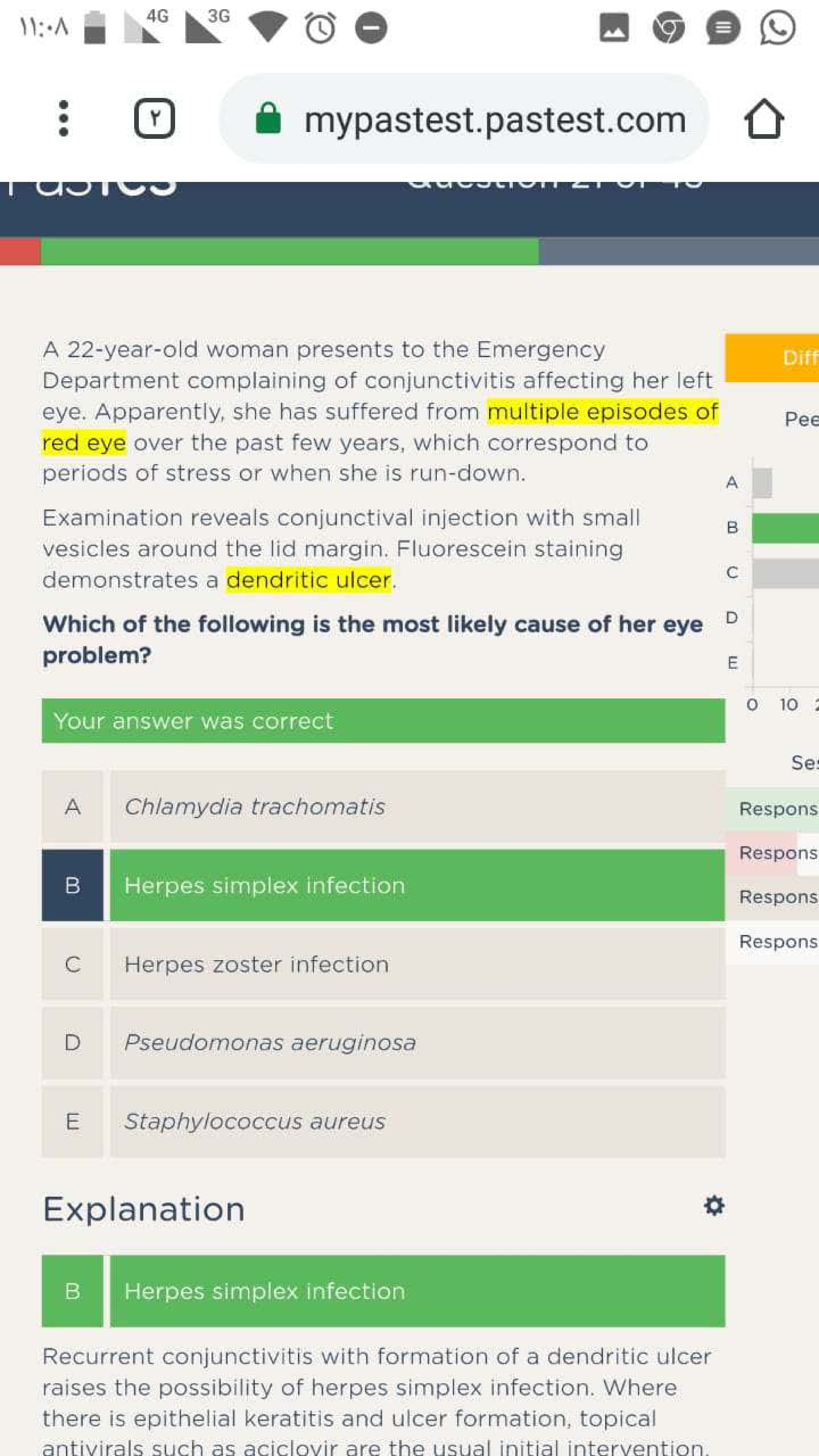
Photos For Herpes Simplex K...
medilinks.blogspot.com

Herpetic keratitis
clinic.org.uk

Herpes simplex keratitis - Wi...
en.wikipedia.org

Corneal ulcer - dendritic ulcer...
flickr.com

EyeWorld | Distinguishing den...
eyeworld.org



A 22-year-old woman presents to the Emergency Department complaining of conjunctivitis affecting her left eye. Apparently, she has suffered from multiple episodes of red eye over the past few years, which correspond to periods of stress or when she is run-down.

Examination reveals conjunctival injection with small vesicles around the lid margin. Fluorescein staining demonstrates a dendritic ulcer.

Which of the following is the most likely cause of her eye problem?

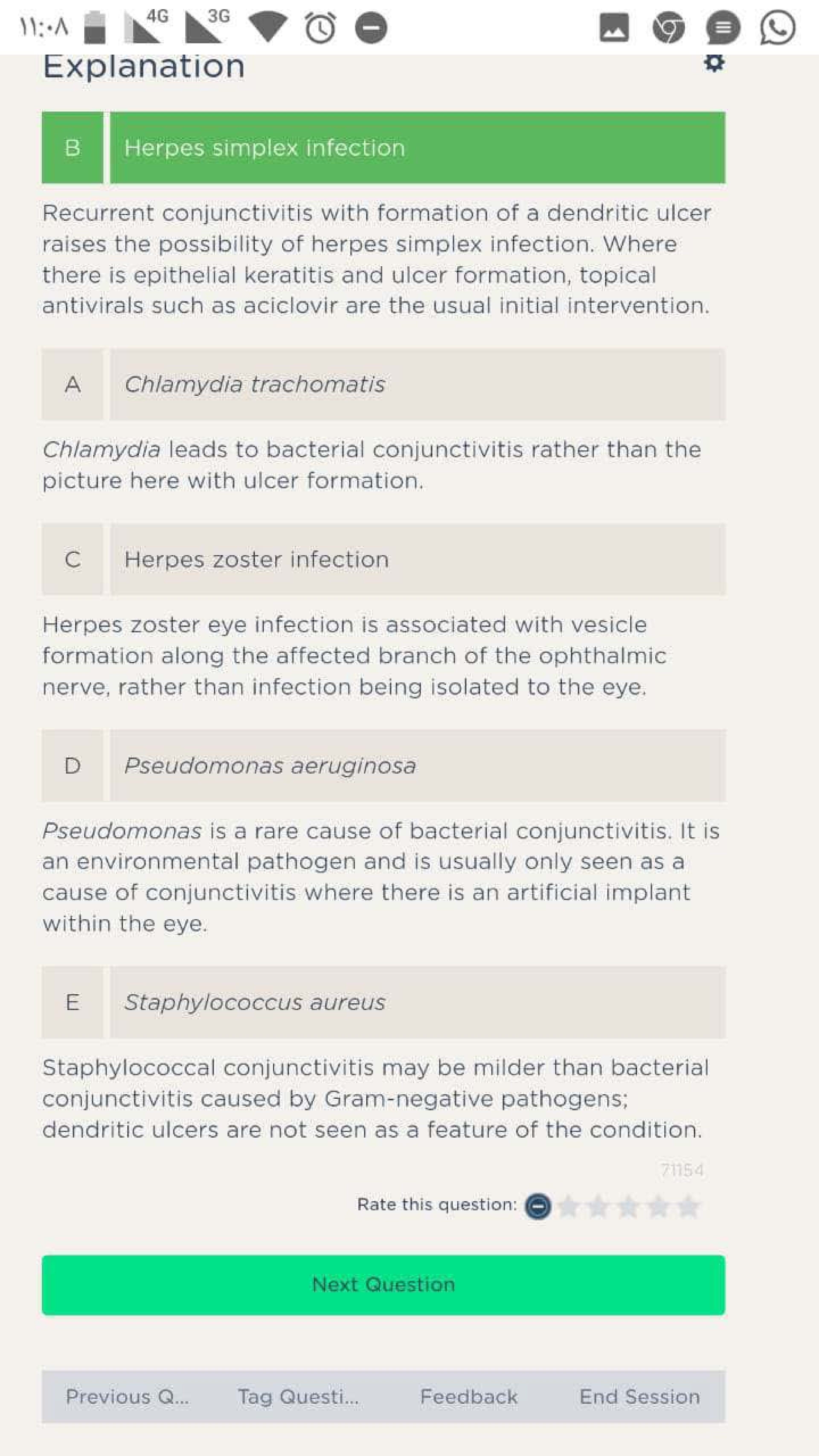
Your answer was correct

A	*Chlamydia trachomatis*
B	Herpes simplex infection
C	Herpes zoster infection
D	*Pseudomonas aeruginosa*
E	*Staphylococcus aureus*

Explanation

B Herpes simplex infection

Recurrent conjunctivitis with formation of a dendritic ulcer raises the possibility of herpes simplex infection. Where there is epithelial keratitis and ulcer formation, topical antivirals such as aciclovir are the usual initial intervention.



Explanation

B Herpes simplex infection

Recurrent conjunctivitis with formation of a dendritic ulcer raises the possibility of herpes simplex infection. Where there is epithelial keratitis and ulcer formation, topical antivirals such as aciclovir are the usual initial intervention.

A *Chlamydia trachomatis*

Chlamydia leads to bacterial conjunctivitis rather than the picture here with ulcer formation.

C Herpes zoster infection

Herpes zoster eye infection is associated with vesicle formation along the affected branch of the ophthalmic nerve, rather than infection being isolated to the eye.

D *Pseudomonas aeruginosa*

Pseudomonas is a rare cause of bacterial conjunctivitis. It is an environmental pathogen and is usually only seen as a cause of conjunctivitis where there is an artificial implant within the eye.

E *Staphylococcus aureus*

Staphylococcal conjunctivitis may be milder than bacterial conjunctivitis caused by Gram-negative pathogens; dendritic ulcers are not seen as a feature of the condition.

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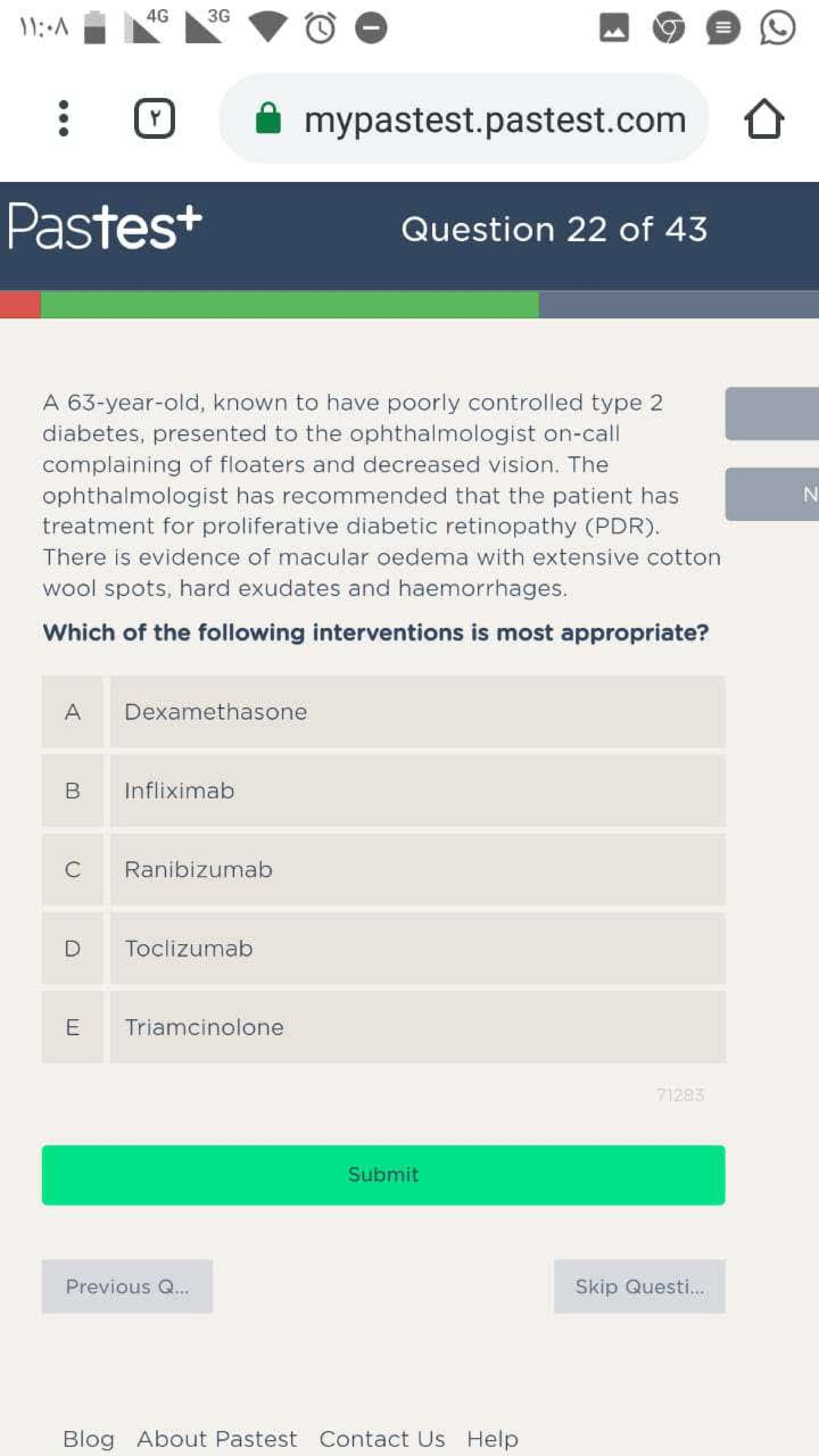


Question 22 of 43

A 63-year-old, known to have poorly controlled type 2 diabetes, presented to the ophthalmologist on-call complaining of floaters and decreased vision. The ophthalmologist has recommended that the patient has treatment for proliferative diabetic retinopathy (PDR). There is evidence of macular oedema with extensive cotton wool spots, hard exudates and haemorrhages.

Which of the following interventions is most appropriate?

A Dexamethasone

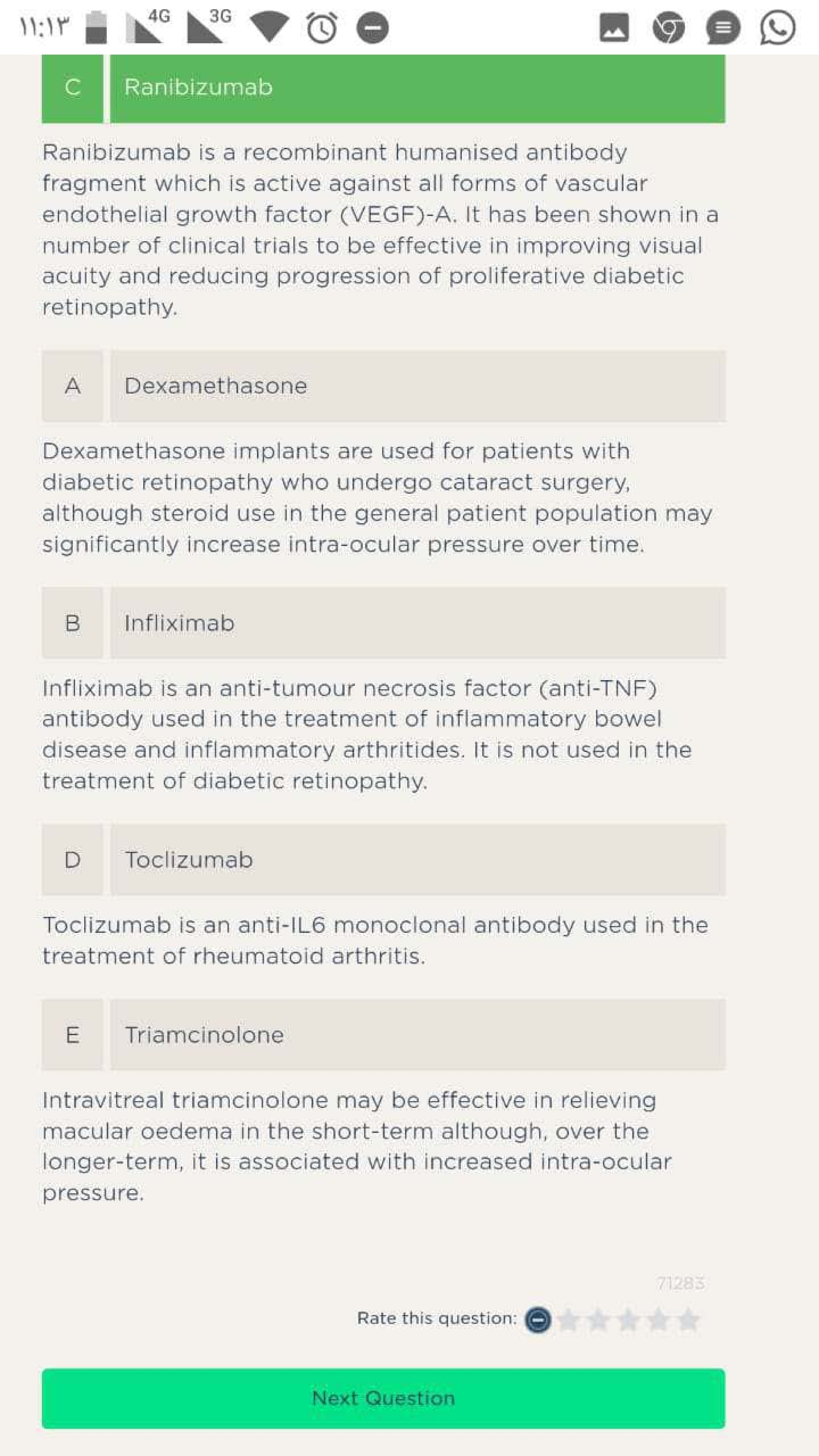
B Infliximab

C Ranibizumab

D Toclizumab

E Triamcinolone

71283



C Ranibizumab

Ranibizumab is a recombinant humanised antibody fragment which is active against all forms of vascular endothelial growth factor (VEGF)-A. It has been shown in a number of clinical trials to be effective in improving visual acuity and reducing progression of proliferative diabetic retinopathy.

A Dexamethasone

Dexamethasone implants are used for patients with diabetic retinopathy who undergo cataract surgery, although steroid use in the general patient population may significantly increase intra-ocular pressure over time.

B Infliximab

Infliximab is an anti-tumour necrosis factor (anti-TNF) antibody used in the treatment of inflammatory bowel disease and inflammatory arthritides. It is not used in the treatment of diabetic retinopathy.

D Toclizumab

Toclizumab is an anti-IL6 monoclonal antibody used in the treatment of rheumatoid arthritis.

E Triamcinolone

Intravitreal triamcinolone may be effective in relieving macular oedema in the short-term although, over the longer-term, it is associated with increased intra-ocular pressure.

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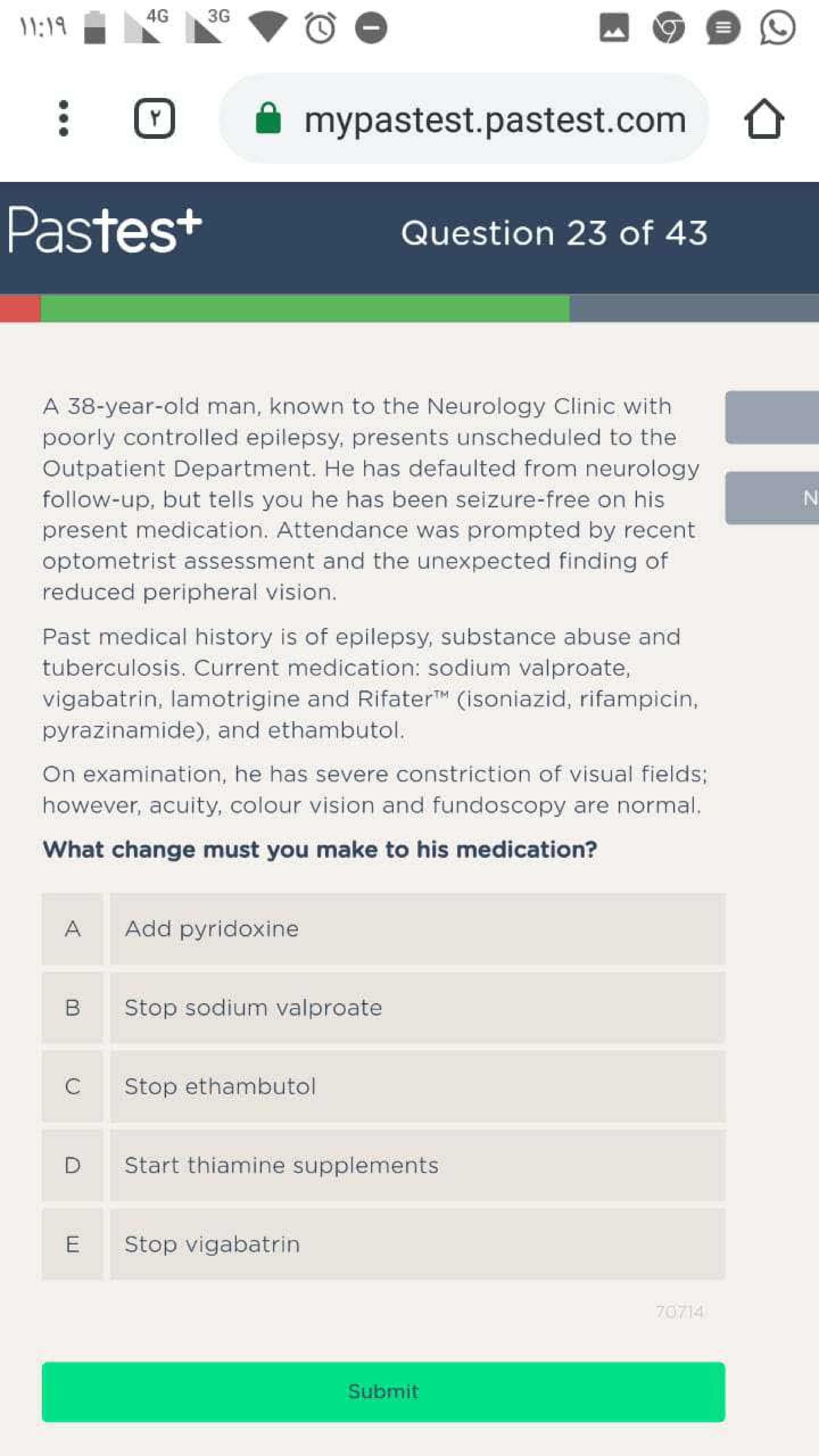

Question 23 of 43

A 38-year-old man, known to the Neurology Clinic with poorly controlled epilepsy, presents unscheduled to the Outpatient Department. He has defaulted from neurology follow-up, but tells you he has been seizure-free on his present medication. Attendance was prompted by recent optometrist assessment and the unexpected finding of reduced peripheral vision.

Past medical history is of epilepsy, substance abuse and tuberculosis. Current medication: sodium valproate, vigabatrin, lamotrigine and Rifater™ (isoniazid, rifampicin, pyrazinamide), and ethambutol.

On examination, he has severe constriction of visual fields; however, acuity, colour vision and fundoscopy are normal.

What change must you make to his medication?

A	Add pyridoxine
B	Stop sodium valproate
C	Stop ethambutol
D	Start thiamine supplements
E	Stop vigabatrin

70714

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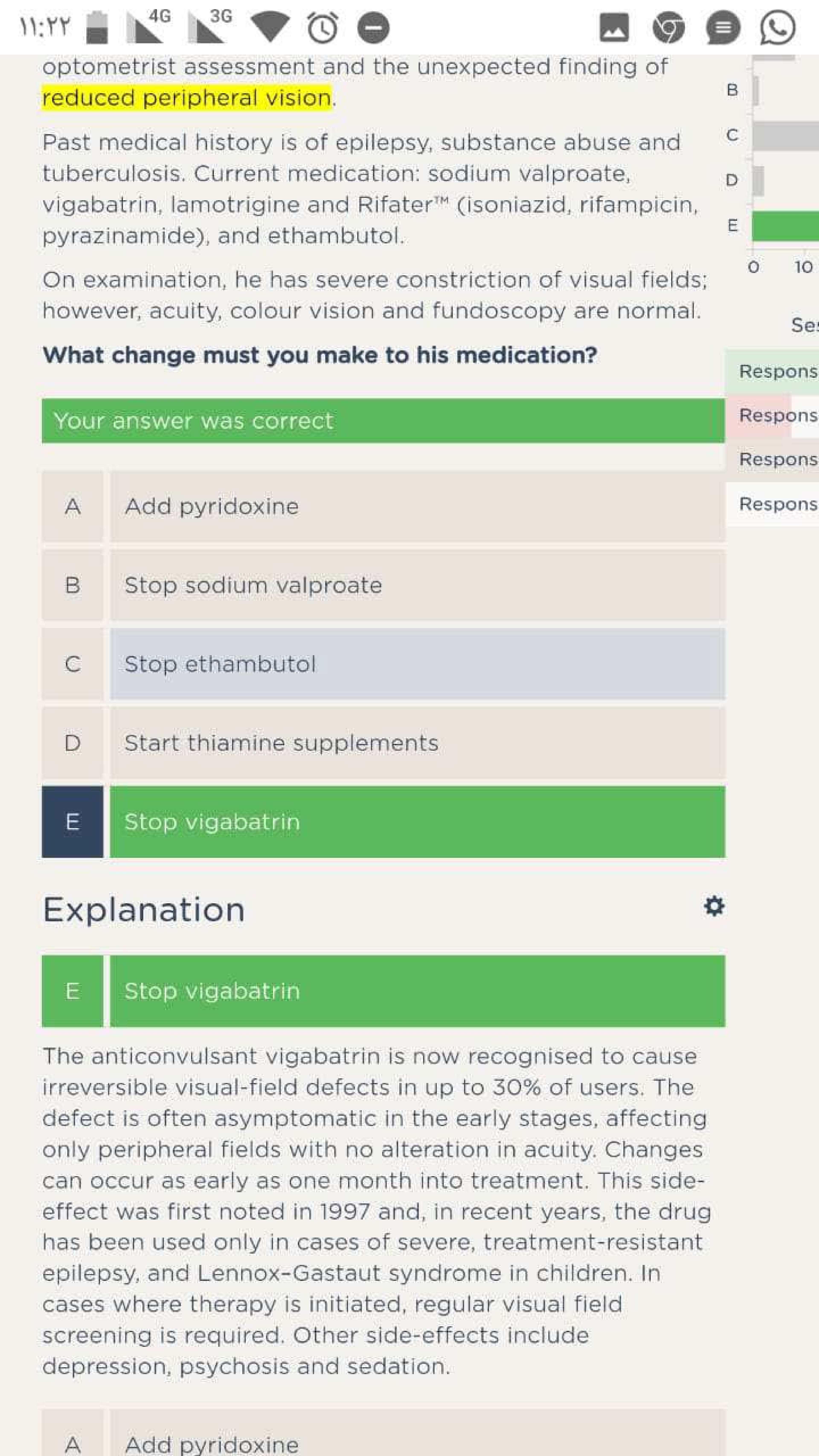


optometrist assessment and the unexpected finding of reduced peripheral vision.

Past medical history is of epilepsy, substance abuse and tuberculosis. Current medication: sodium valproate, vigabatrin, lamotrigine and Rifater™ (isoniazid, rifampicin, pyrazinamide), and ethambutol.

On examination, he has severe constriction of visual fields; however, acuity, colour vision and fundoscopy are normal.

What change must you make to his medication?

Your answer was correct

A Add pyridoxine

B Stop sodium valproate

C Stop ethambutol

D Start thiamine supplements

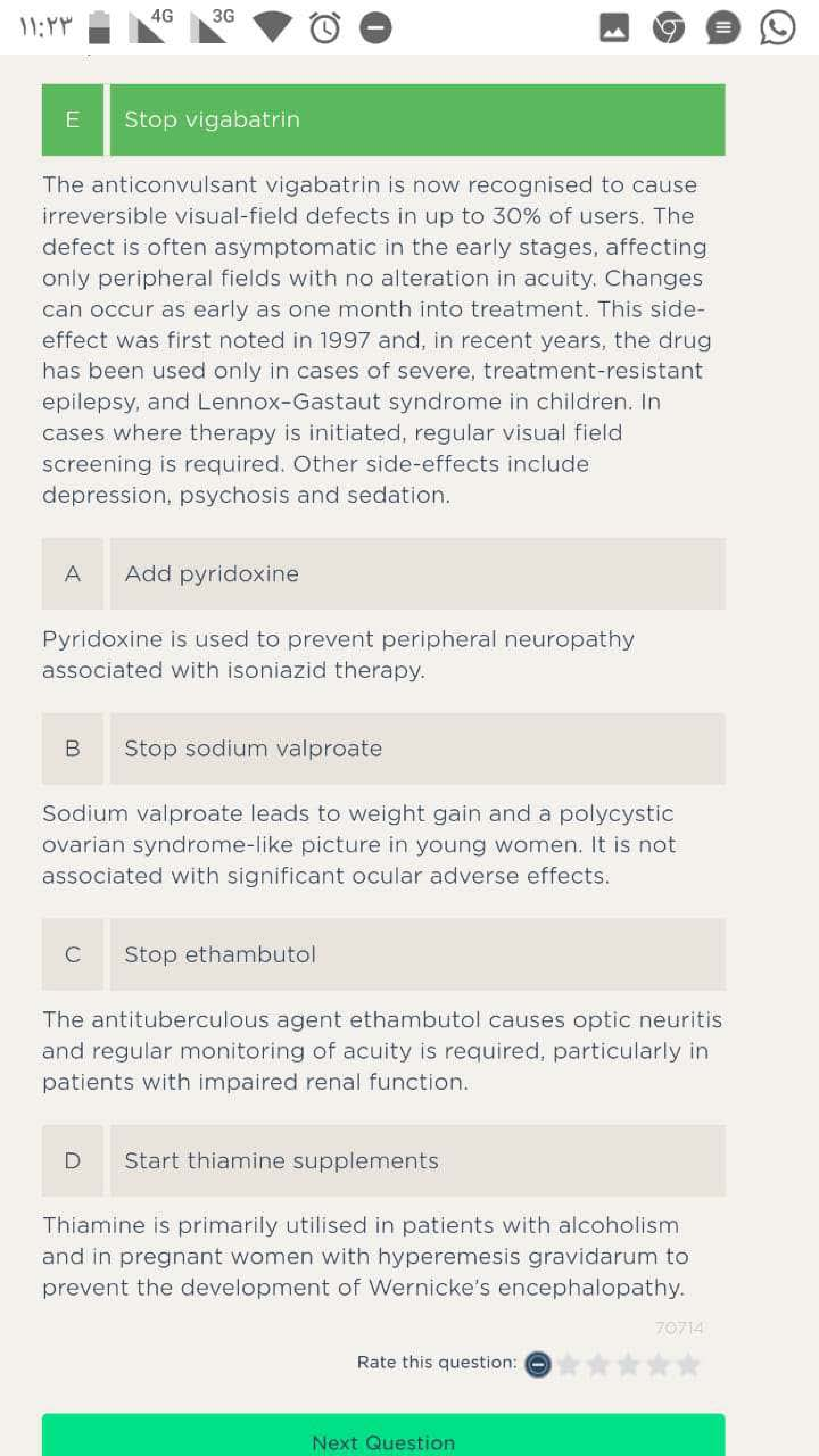
E Stop vigabatrin

Explanation

E Stop vigabatrin

The anticonvulsant vigabatrin is now recognised to cause irreversible visual-field defects in up to 30% of users. The defect is often asymptomatic in the early stages, affecting only peripheral fields with no alteration in acuity. Changes can occur as early as one month into treatment. This side-effect was first noted in 1997 and, in recent years, the drug has been used only in cases of severe, treatment-resistant epilepsy, and Lennox-Gastaut syndrome in children. In cases where therapy is initiated, regular visual field screening is required. Other side-effects include depression, psychosis and sedation.

A Add pyridoxine



E Stop vigabatrin

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A Add pyridoxine

Pyridoxine is used to prevent peripheral neuropathy associated with isoniazid therapy.

B Stop sodium valproate

Sodium valproate leads to weight gain and a polycystic ovarian syndrome-like picture in young women. It is not associated with significant ocular adverse effects.

C Stop ethambutol

The antituberculous agent ethambutol causes optic neuritis and regular monitoring of acuity is required, particularly in patients with impaired renal function.

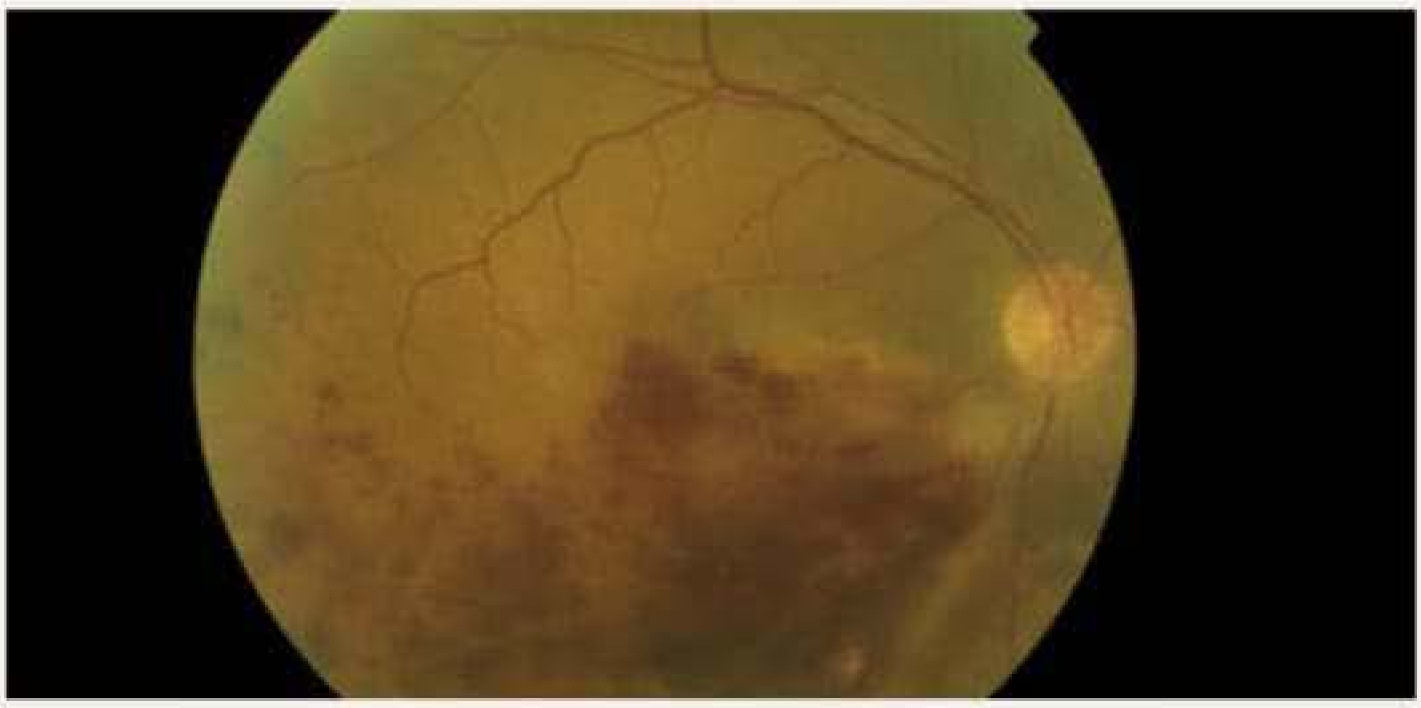
D Start thiamine supplements

Thiamine is primarily utilised in patients with alcoholism and in pregnant women with hyperemesis gravidarum to prevent the development of Wernicke's encephalopathy.

70714

A 24-year-old woman presents to the Emergency Department with sudden painless loss of vision affecting the upper portion of vision out of her right eye. She suffered a deep vein thrombosis (DVT) at age 18 years but has no other significant past medical history.

An image of her right retina is shown below.



Her blood pressure is 132/82 mmHg, pulse is 88 bpm and regular, body mass index (BMI) is 24 kg/m².

Which is the best investigation for the underlying cause of this event?

A 24-hour ambulatory blood pressure monitoring

B Fasting triglycerides

C HbA1c

D Immunoglobulin electrophoresis

E Thrombophilia screen

71592

Submit

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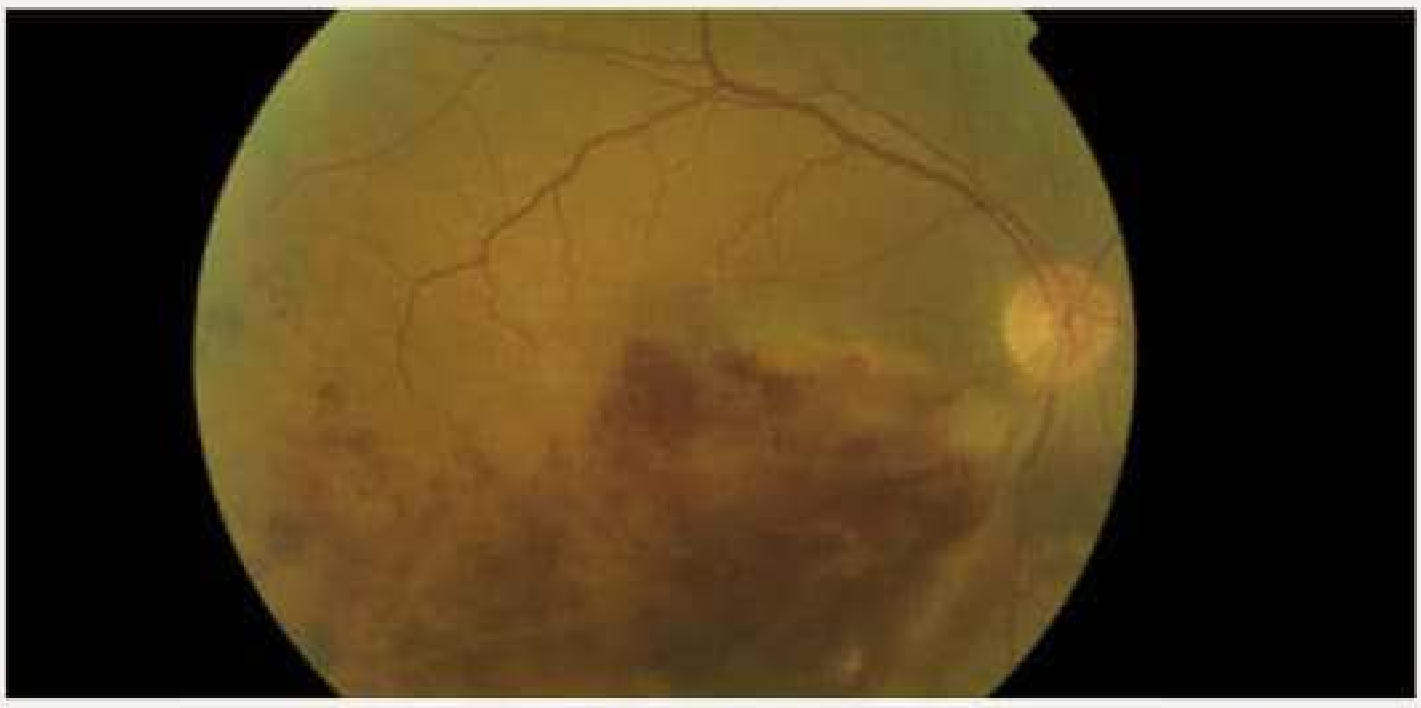

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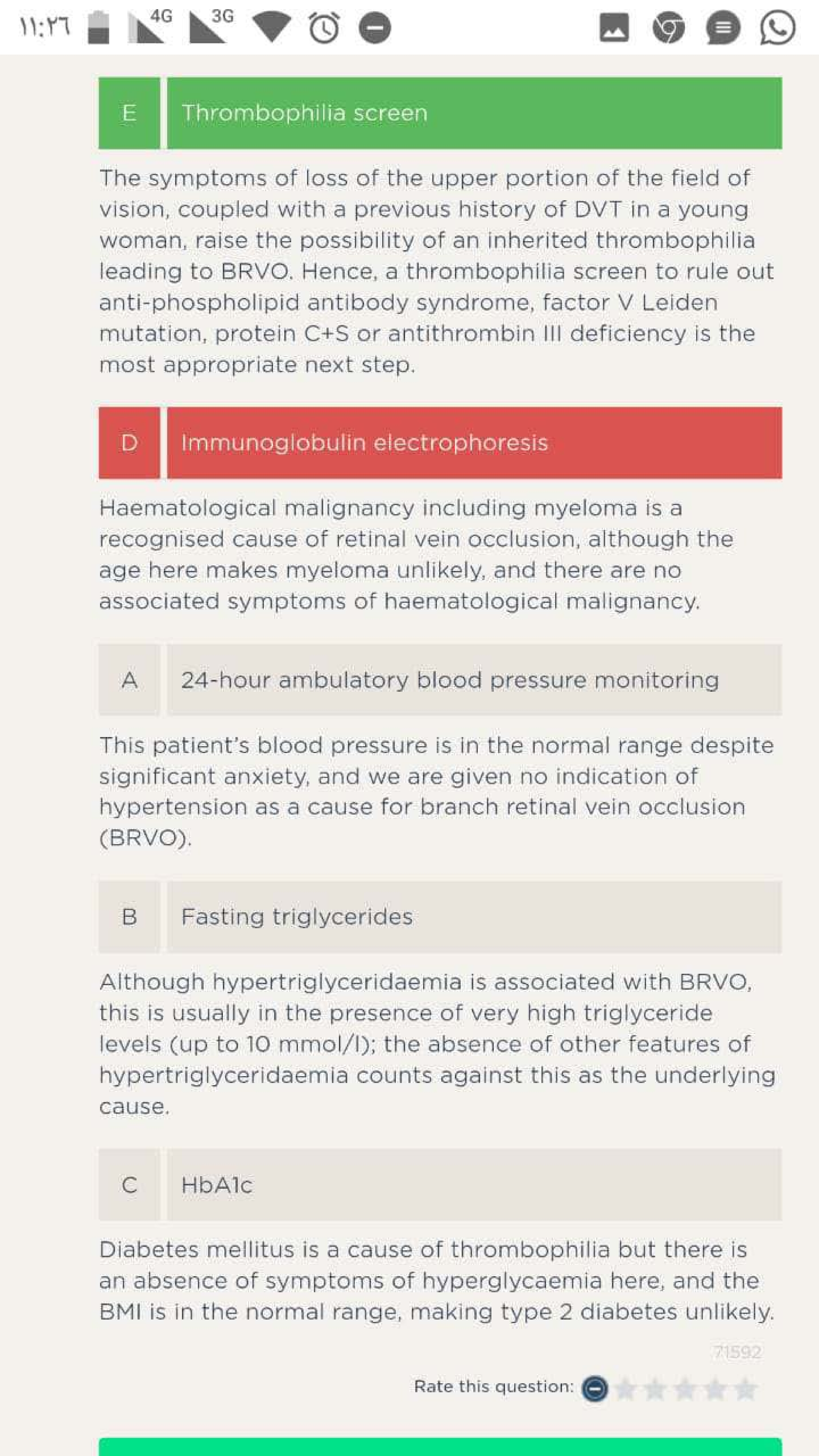
Which is the best investigation for the underlying cause of this event?

Your answer was incorrect

A	24-hour ambulatory blood pressure monitoring
B	Fasting triglycerides
C	HbA1c
D	Immunoglobulin electrophoresis
E	Thrombophilia screen

Explanation



E Thrombophilia screen

The symptoms of loss of the upper portion of the field of vision, coupled with a previous history of DVT in a young woman, raise the possibility of an inherited thrombophilia leading to BRVO. Hence, a thrombophilia screen to rule out anti-phospholipid antibody syndrome, factor V Leiden mutation, protein C+S or antithrombin III deficiency is the most appropriate next step.

D Immunoglobulin electrophoresis

Haematological malignancy including myeloma is a recognised cause of retinal vein occlusion, although the age here makes myeloma unlikely, and there are no associated symptoms of haematological malignancy.

A 24-hour ambulatory blood pressure monitoring

This patient's blood pressure is in the normal range despite significant anxiety, and we are given no indication of hypertension as a cause for branch retinal vein occlusion (BRVO).

B Fasting triglycerides

Although hypertriglyceridaemia is associated with BRVO, this is usually in the presence of very high triglyceride levels (up to 10 mmol/l); the absence of other features of hypertriglyceridaemia counts against this as the underlying cause.

C HbA1c

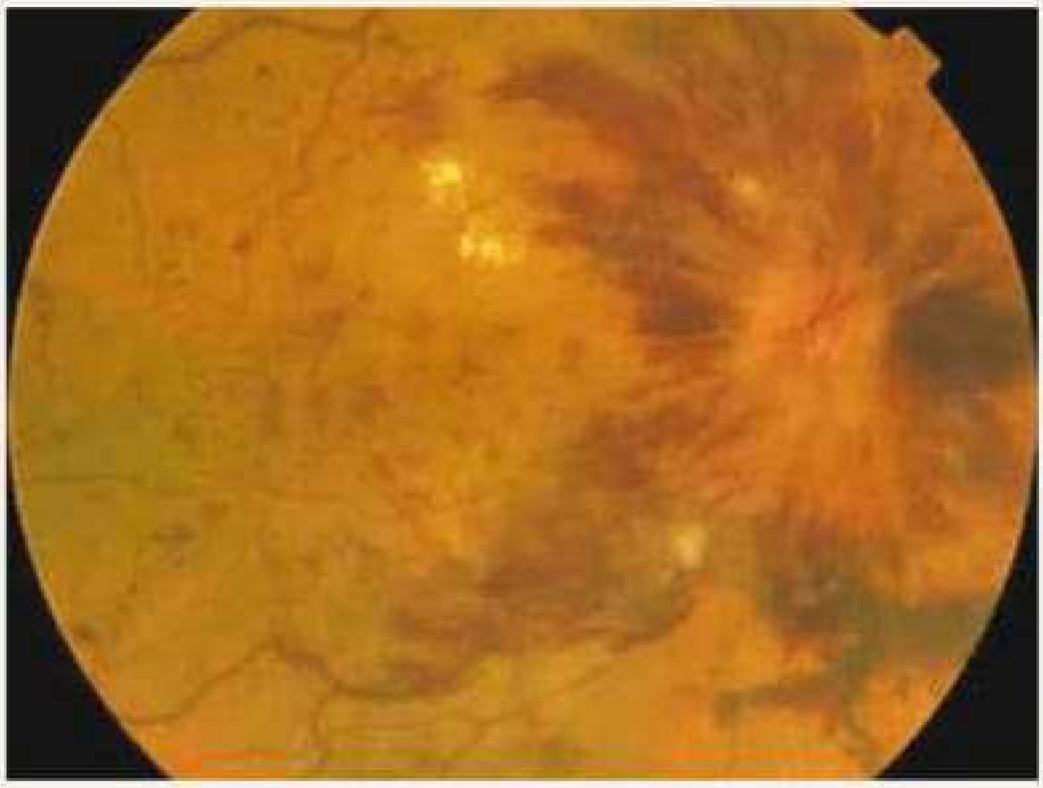
Diabetes mellitus is a cause of thrombophilia but there is an absence of symptoms of hyperglycaemia here, and the BMI is in the normal range, making type 2 diabetes unlikely.

71592

A 65-year-old woman with a past history of hypertension presents with progressive loss of vision and vague discomfort over the right eye during the last two days.

On examination, acuity is 6/36 in the affected eye, and 6/6 in the left eye. Blood pressure is 152/82 mmHg, pulse is 88/min and regular and she is anxious. Pupillary reactions are normal.

The fundoscopic appearance is shown below:



What is the most likely diagnosis?

A	Retinitis pigmentosa (RP)
B	Branch retinal artery occlusion (BRAO)
C	Branch retinal vein occlusion (BRVO)
D	Central retinal vein occlusion (CRVO)
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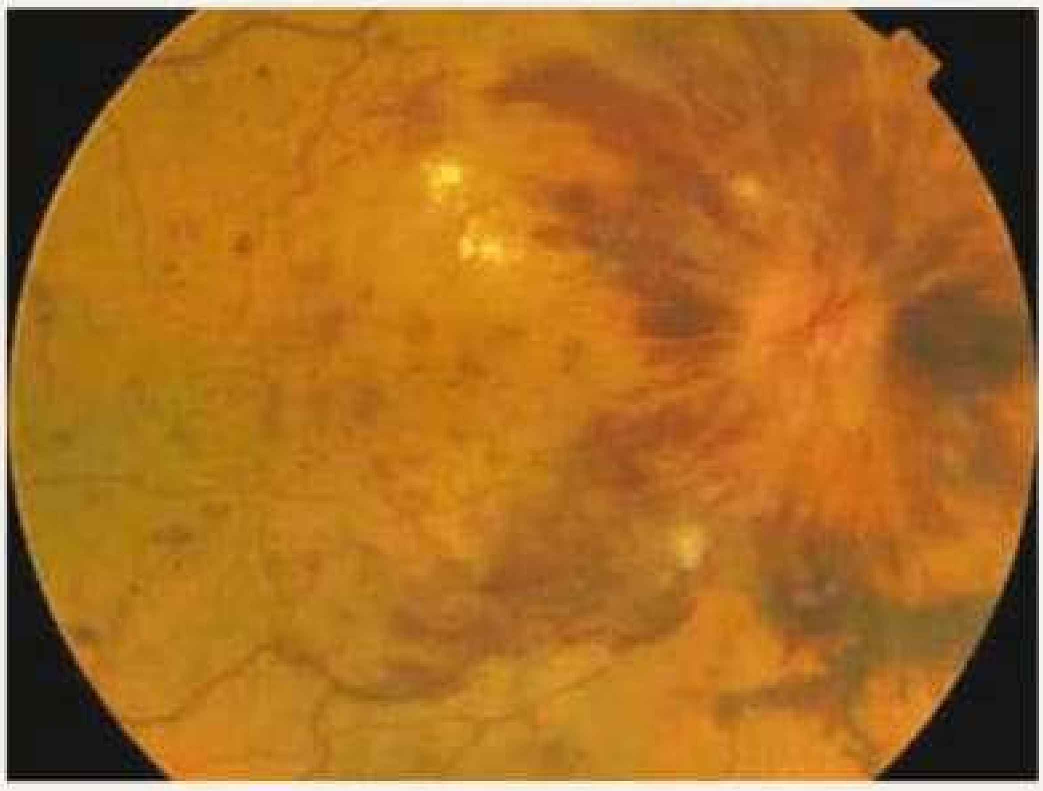

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A Retinitis pigmentosa (RP)

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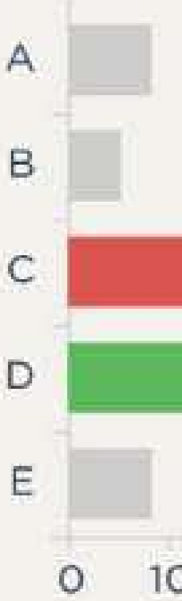
D

P



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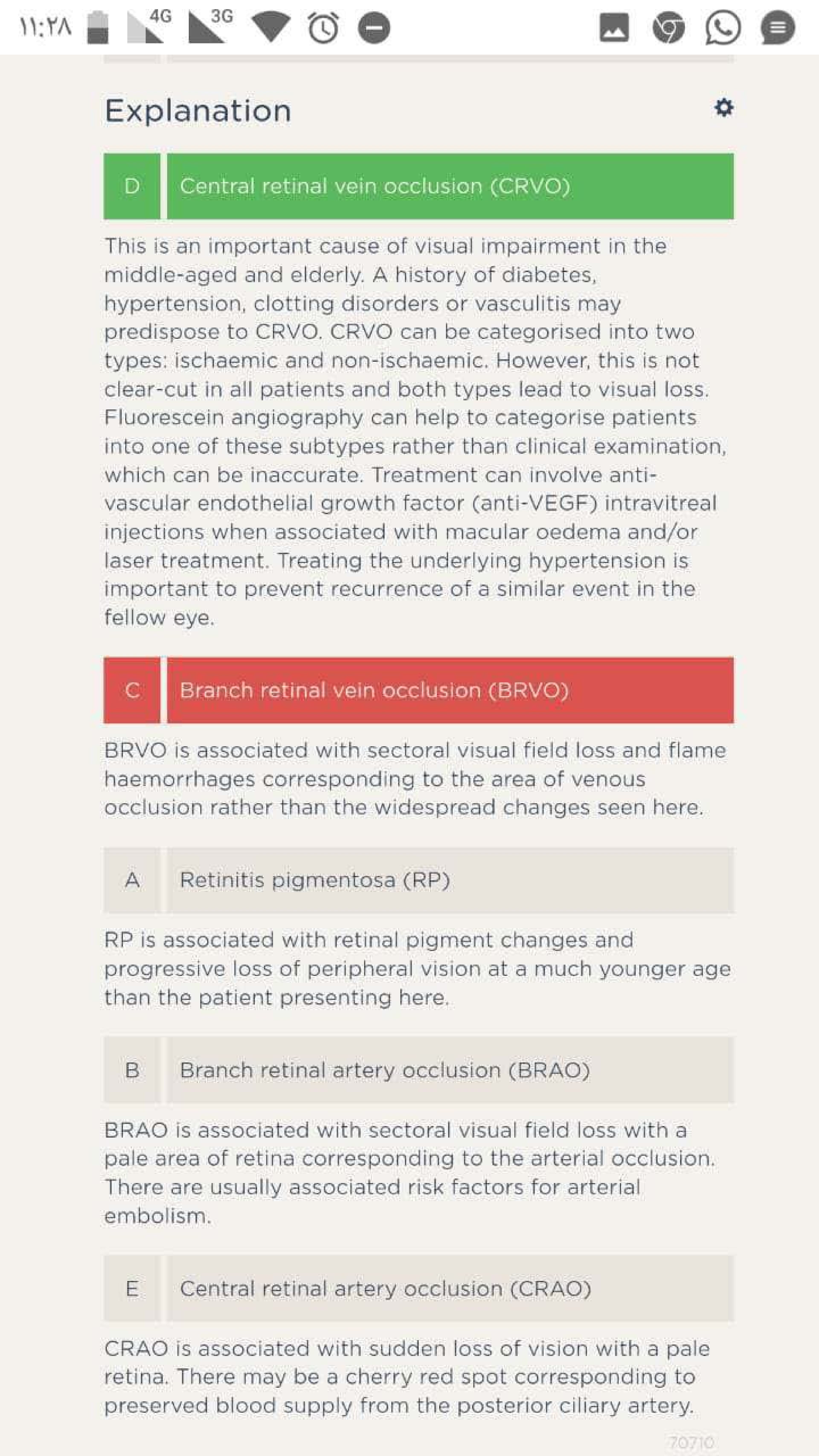
Explanation

D Central retinal vein occlusion (CRVO)



Explanation

D Central retinal vein occlusion (CRVO)

This is an important cause of visual impairment in the middle-aged and elderly. A history of diabetes, hypertension, clotting disorders or vasculitis may predispose to CRVO. CRVO can be categorised into two types: ischaemic and non-ischaemic. However, this is not clear-cut in all patients and both types lead to visual loss. Fluorescein angiography can help to categorise patients into one of these subtypes rather than clinical examination, which can be inaccurate. Treatment can involve anti-vascular endothelial growth factor (anti-VEGF) intravitreal injections when associated with macular oedema and/or laser treatment. Treating the underlying hypertension is important to prevent recurrence of a similar event in the fellow eye.

C Branch retinal vein occlusion (BRVO)

BRVO is associated with sectoral visual field loss and flame haemorrhages corresponding to the area of venous occlusion rather than the widespread changes seen here.

A Retinitis pigmentosa (RP)

RP is associated with retinal pigment changes and progressive loss of peripheral vision at a much younger age than the patient presenting here.

B Branch retinal artery occlusion (BRAO)

BRAO is associated with sectoral visual field loss with a pale area of retina corresponding to the arterial occlusion. There are usually associated risk factors for arterial embolism.

E Central retinal artery occlusion (CRAO)

CRAO is associated with sudden loss of vision with a pale retina. There may be a cherry red spot corresponding to preserved blood supply from the posterior ciliary artery.

70710

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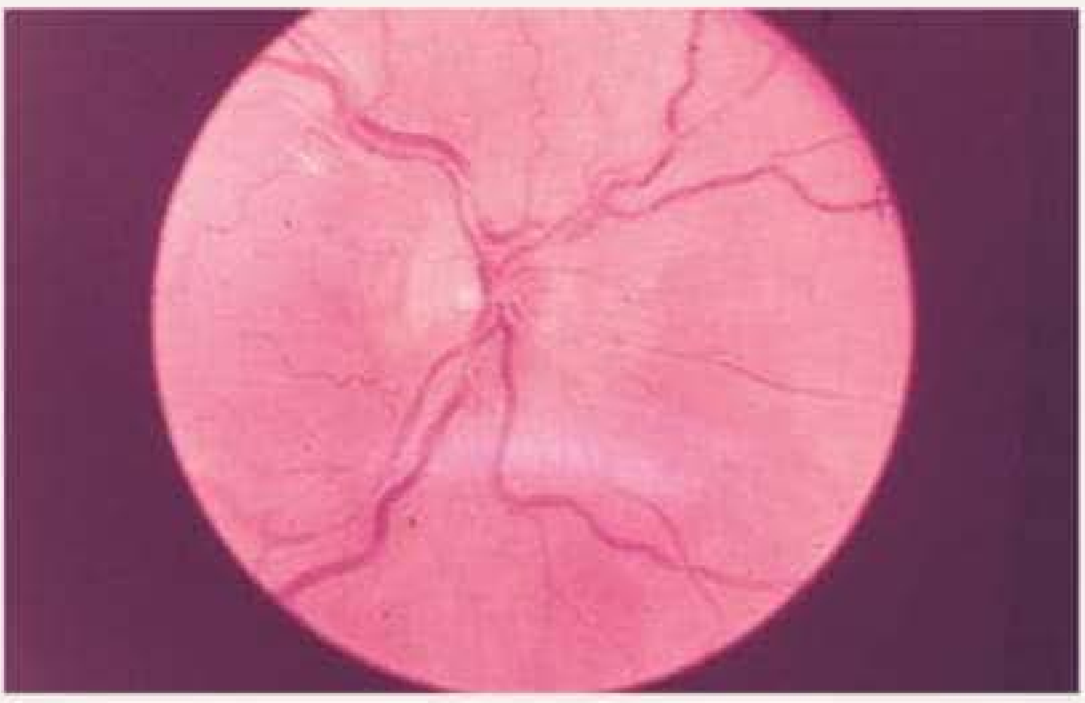
Pastest+ Question 26 of 43

A 65-year-old man presents to the Emergency Department with reduced vision in the right eye noticed while taking a photograph.

On examination, he has a right afferent pupillary defect and the following appearance on fundoscopy:



What is the most likely underlying diagnosis?

A Toxoplasma chorioretinitis

B Hypertensive retinopathy

C Central retinal vein occlusion

D Branch retinal artery occlusion

E Multiple sclerosis

70725

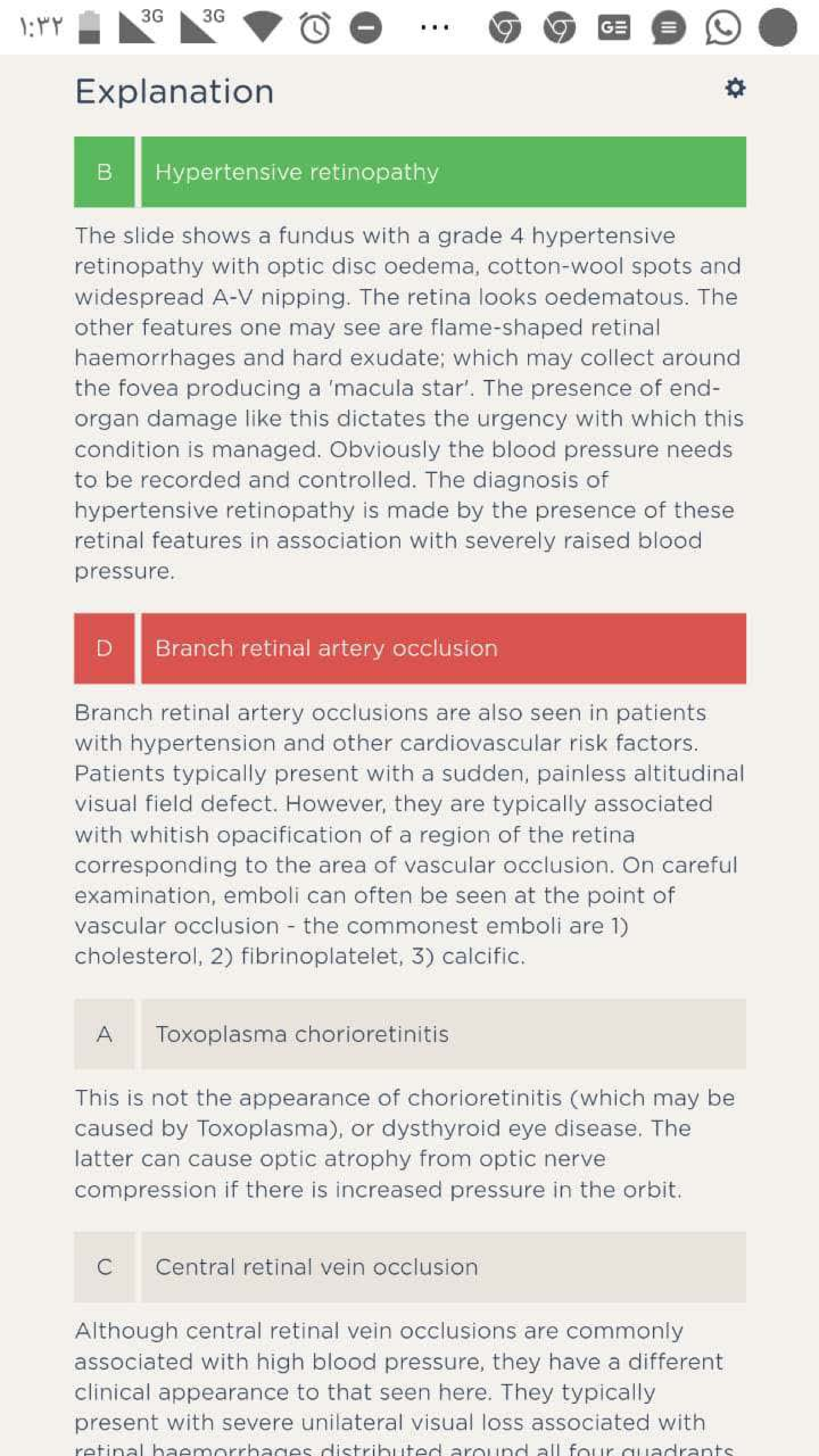
Submit

Previous Q...

Skip Questi...

Calcul

Normal



Explanation

B **Hypertensive retinopathy**

The slide shows a fundus with a grade 4 hypertensive retinopathy with optic disc oedema, cotton-wool spots and widespread A-V nipping. The retina looks oedematous. The other features one may see are flame-shaped retinal haemorrhages and hard exudate; which may collect around the fovea producing a 'macula star'. The presence of end-organ damage like this dictates the urgency with which this condition is managed. Obviously the blood pressure needs to be recorded and controlled. The diagnosis of hypertensive retinopathy is made by the presence of these retinal features in association with severely raised blood pressure.

D **Branch retinal artery occlusion**

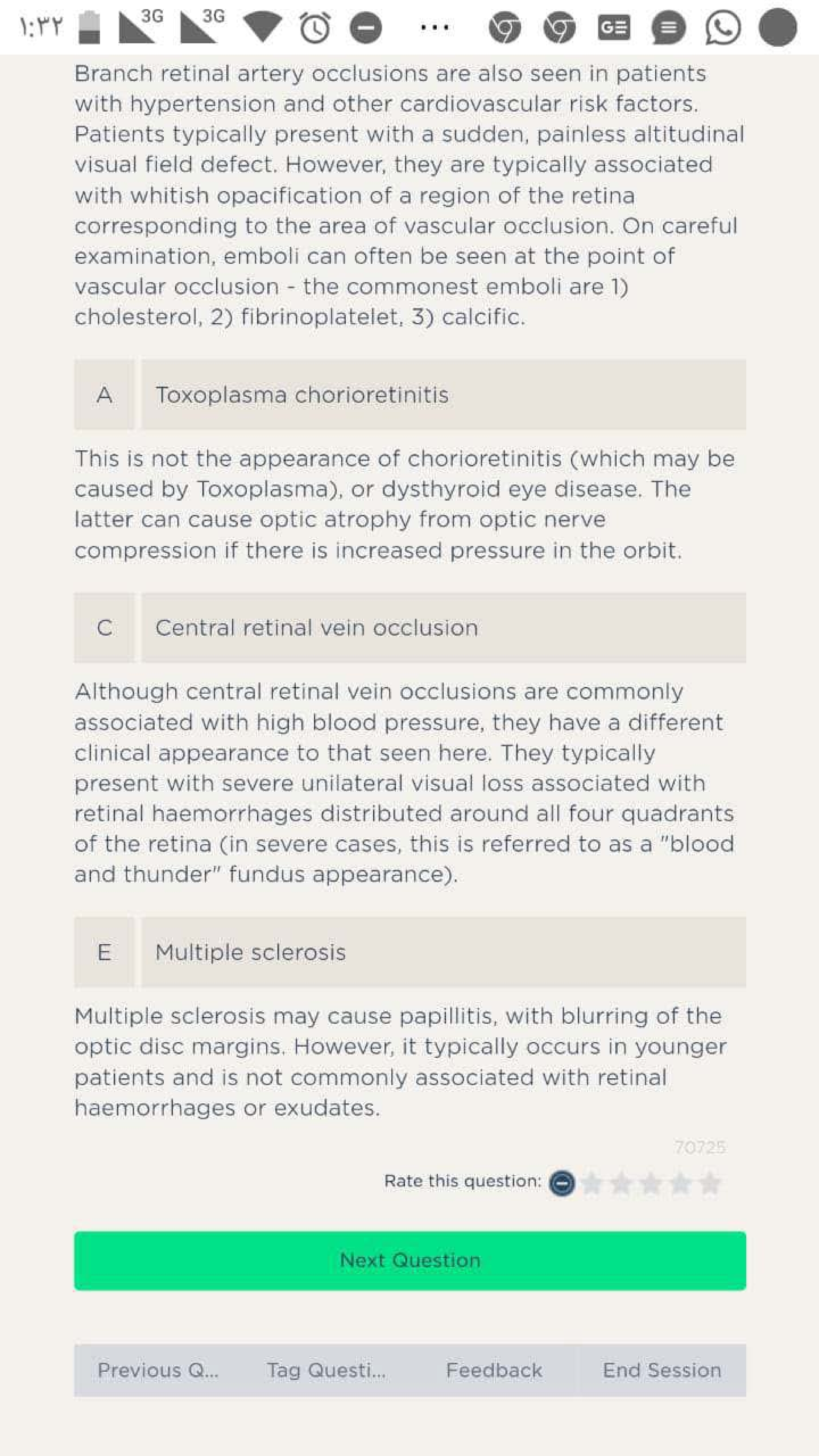
Branch retinal artery occlusions are also seen in patients with hypertension and other cardiovascular risk factors. Patients typically present with a sudden, painless altitudinal visual field defect. However, they are typically associated with whitish opacification of a region of the retina corresponding to the area of vascular occlusion. On careful examination, emboli can often be seen at the point of vascular occlusion - the commonest emboli are 1) cholesterol, 2) fibrinoplatelet, 3) calcific.

A **Toxoplasma chorioretinitis**

This is not the appearance of chorioretinitis (which may be caused by Toxoplasma), or dysthyroid eye disease. The latter can cause optic atrophy from optic nerve compression if there is increased pressure in the orbit.

C **Central retinal vein occlusion**

Although central retinal vein occlusions are commonly associated with high blood pressure, they have a different clinical appearance to that seen here. They typically present with severe unilateral visual loss associated with retinal haemorrhages distributed around all four quadrants



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Although central retinal vein occlusions are commonly associated with high blood pressure, they have a different clinical appearance to that seen here. They typically present with severe unilateral visual loss associated with retinal haemorrhages distributed around all four quadrants of the retina (in severe cases, this is referred to as a "blood and thunder" fundus appearance).

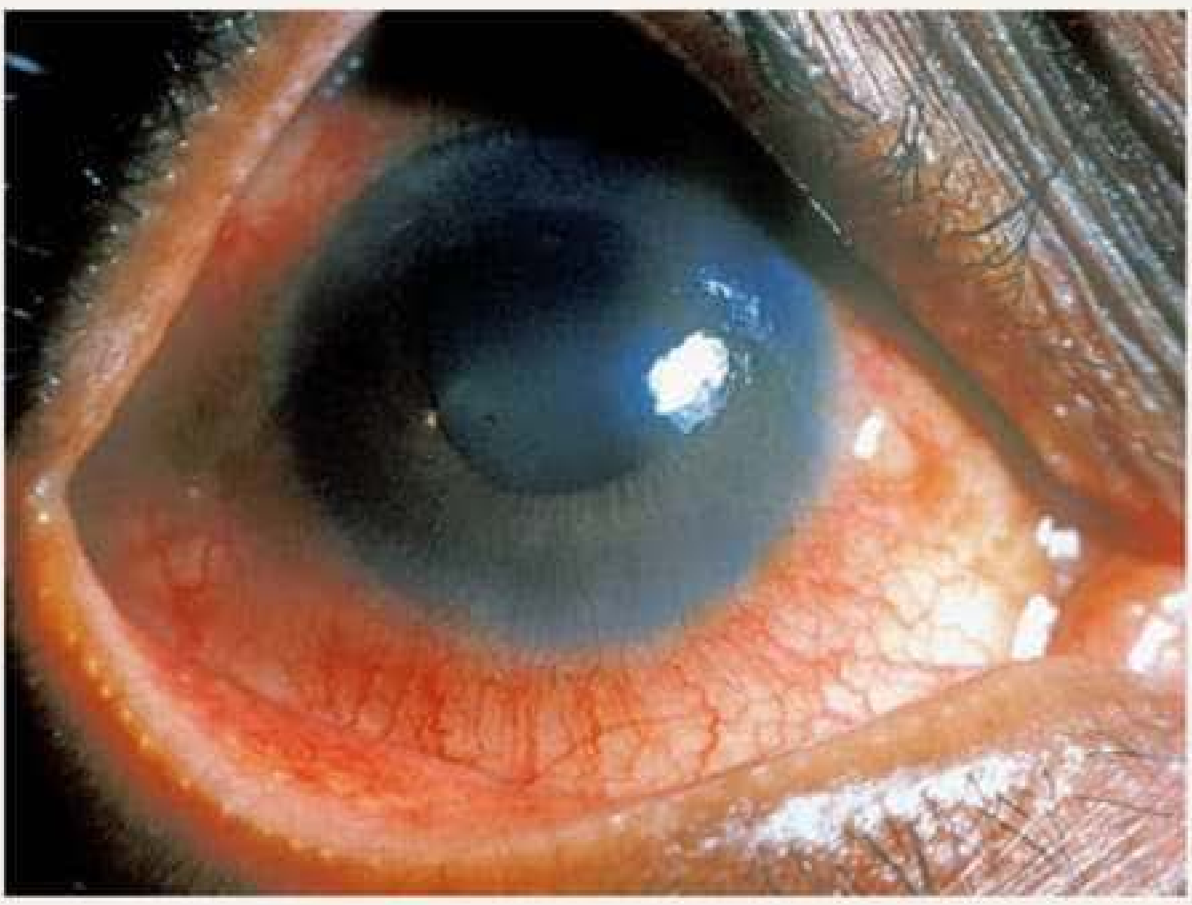
E	Multiple sclerosis

Multiple sclerosis may cause papillitis, with blurring of the optic disc margins. However, it typically occurs in younger patients and is not commonly associated with retinal haemorrhages or exudates.

70725

A 34-year-old man presents to the Emergency Department with general malaise and a red eye (see photograph below). He describes an intense, dull, aching sensation in the eye itself and around the orbital area, as well as blurred vision.

Over the past week, he has had a sore throat and intermittent fever and has had a course of antibiotics from his general practitioner (GP). He then developed bilateral swollen knees and ankles with a rash over both shins. Visual acuity is 6/6 in the right eye and 6/24 in the left (affected) eye.



Photograph courtesy of David Yorston and Marcia Zondervan, Community Eye Health Vol. 18 No. 53 2005 pp 72

What is the most likely ophthalmological diagnosis?

A	Acute anterior uveitis
B	Episcleritis
C	Bacterial conjunctivitis
D	Toxocara
E	Herpes zoster conjunctivitis

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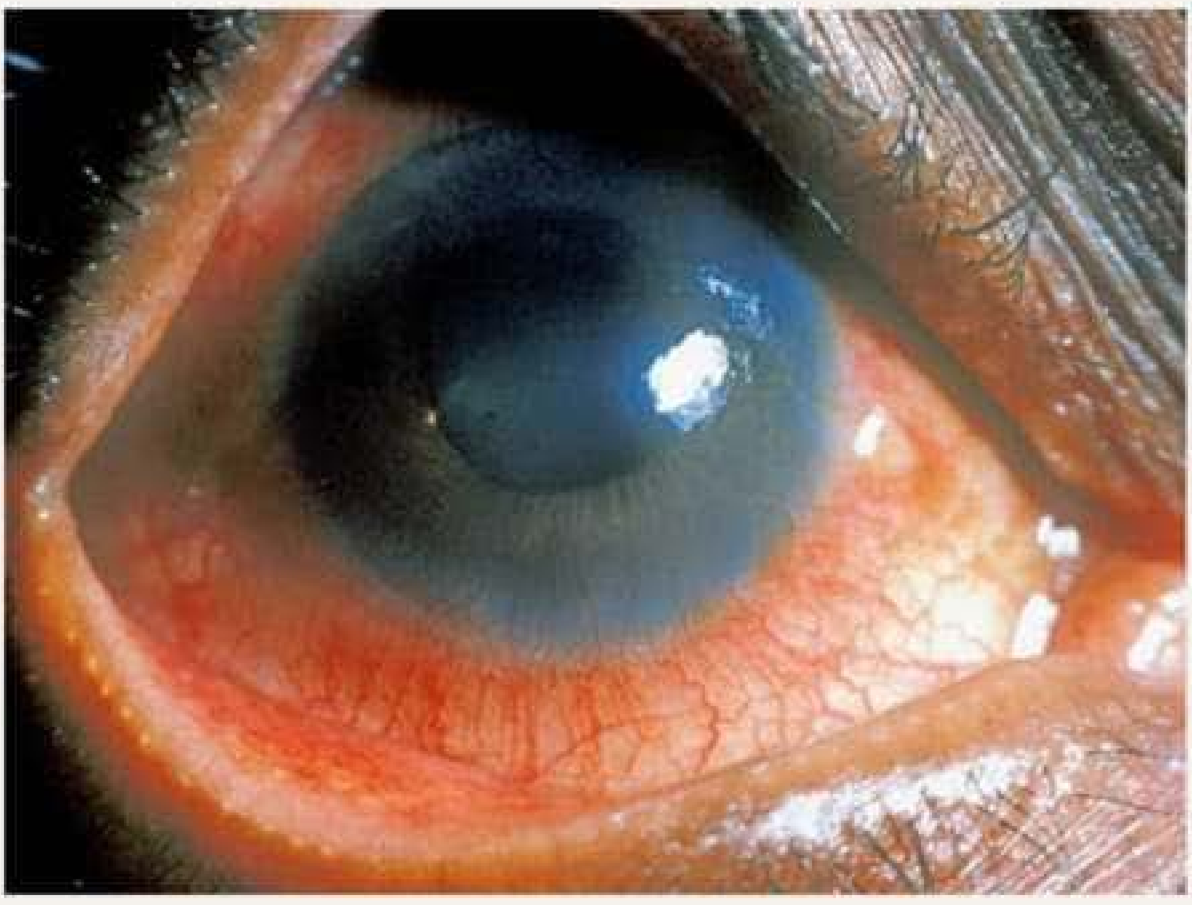

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Your answer was correct

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D

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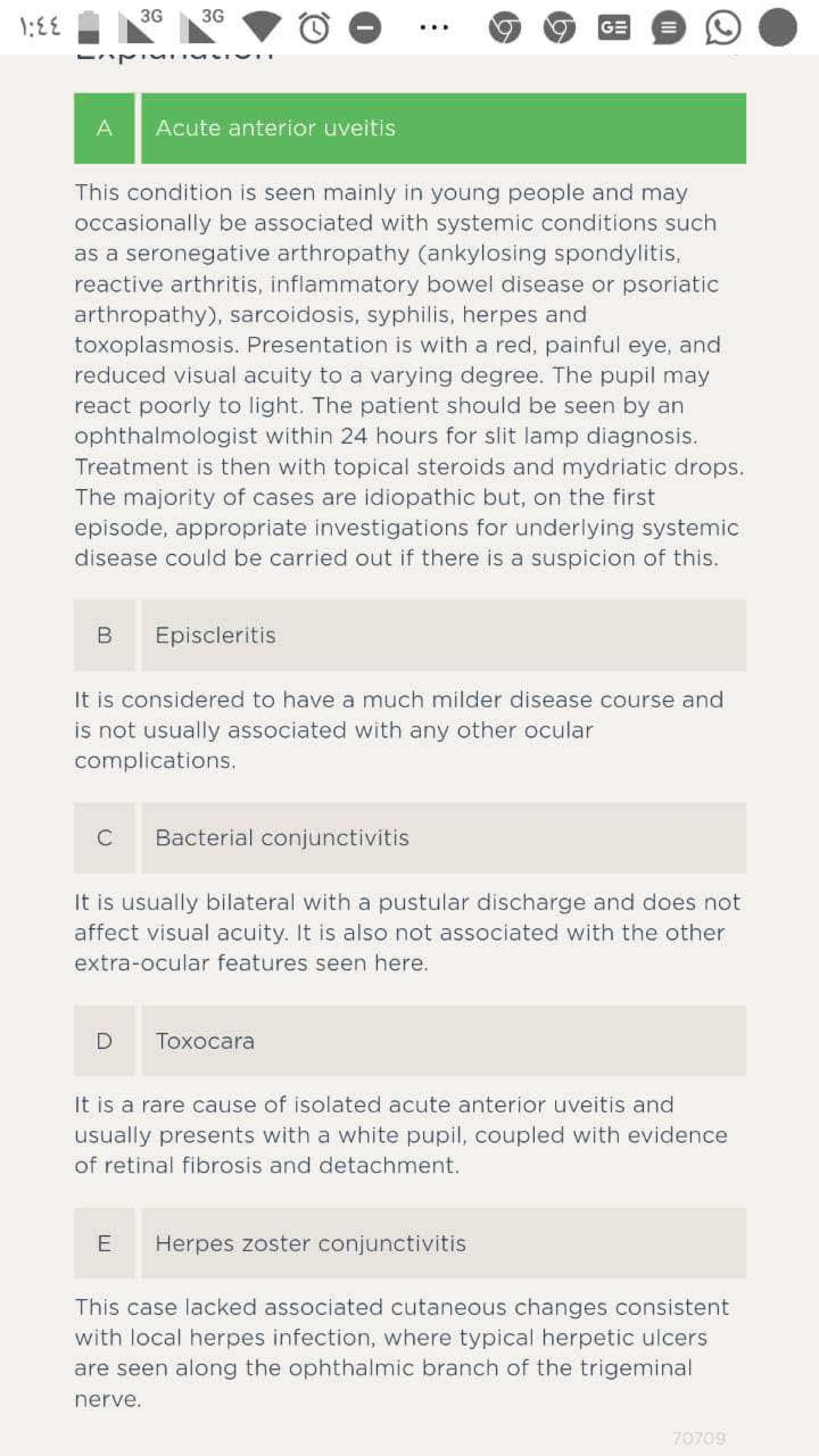


A **Acute anterior uveitis**

This condition is seen mainly in young people and may occasionally be associated with systemic conditions such as a seronegative arthropathy (ankylosing spondylitis, reactive arthritis, inflammatory bowel disease or psoriatic arthropathy), sarcoidosis, syphilis, herpes and toxoplasmosis. Presentation is with a red, painful eye, and reduced visual acuity to a varying degree. The pupil may react poorly to light. The patient should be seen by an ophthalmologist within 24 hours for slit lamp diagnosis. Treatment is then with topical steroids and mydriatic drops. The majority of cases are idiopathic but, on the first episode, appropriate investigations for underlying systemic disease could be carried out if there is a suspicion of this.

B Episcleritis

It is considered to have a much milder disease course and is not usually associated with any other ocular complications.

C Bacterial conjunctivitis

It is usually bilateral with a pustular discharge and does not affect visual acuity. It is also not associated with the other extra-ocular features seen here.

D Toxocara

It is a rare cause of isolated acute anterior uveitis and usually presents with a white pupil, coupled with evidence of retinal fibrosis and detachment.

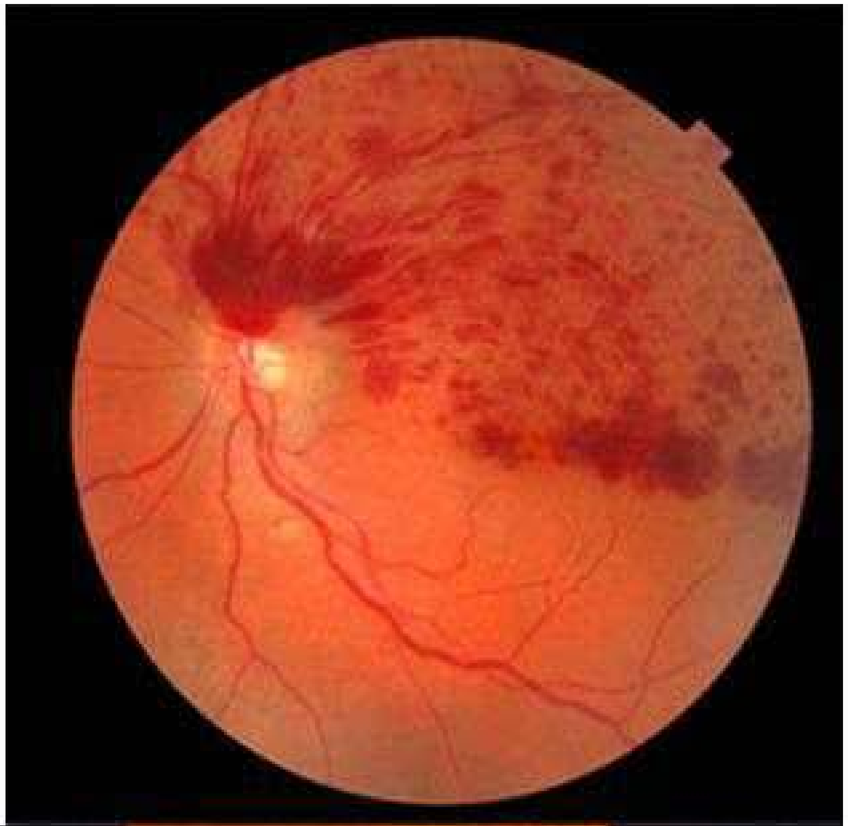
E Herpes zoster conjunctivitis

This case lacked associated cutaneous changes consistent with local herpes infection, where typical herpetic ulcers are seen along the ophthalmic branch of the trigeminal nerve.

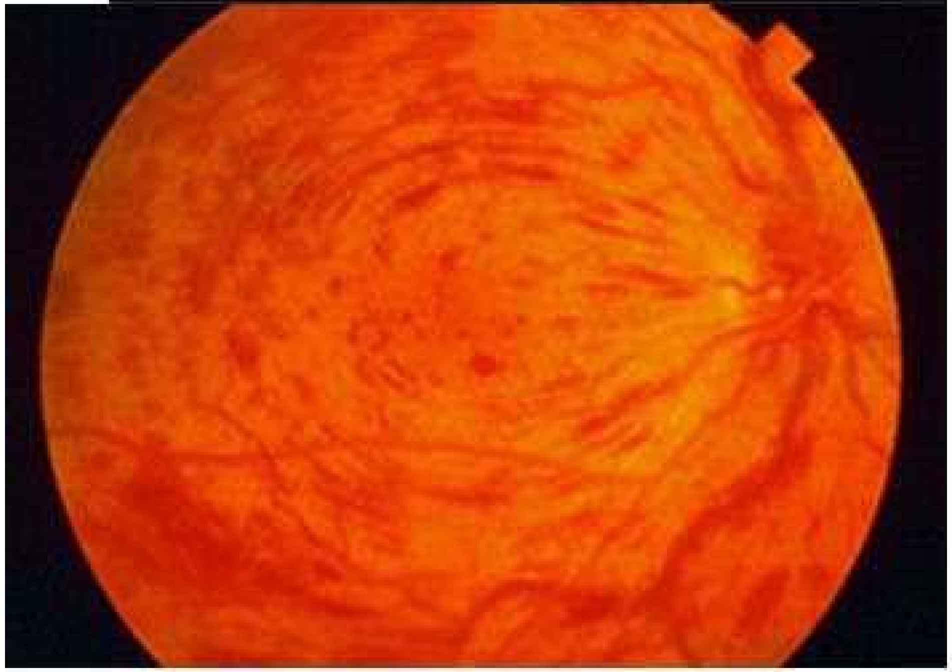
70709

Retinal Vein Occlusion

- BRVO



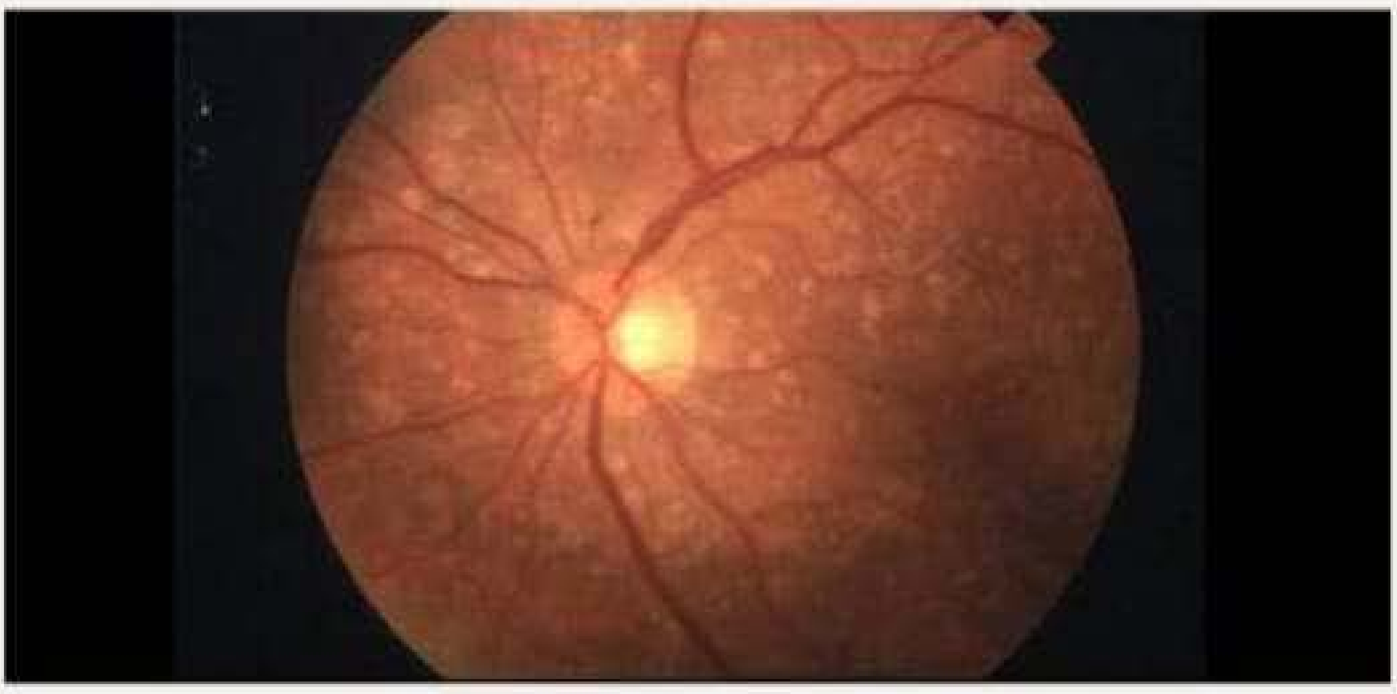
- CRVO



An 26-year-old woman presents to the Eye Clinic, following a referral from the optometrist. She presented with difficulty with the centre of her vision and at night. She tells you that her father progressively lost sight until he went blind at the age of 46.

General physical examination is unremarkable.

A picture of her left retina is shown below.



The right retina has similar changes.

Which of the following is the most appropriate next investigation?

A	Vitamin B_{12} levels
B	Fasting blood glucose
C	Folic acid levels
D	Genetic testing
E	Vitamin A levels

71637

Submit

Previous Q...

Skip Questi...

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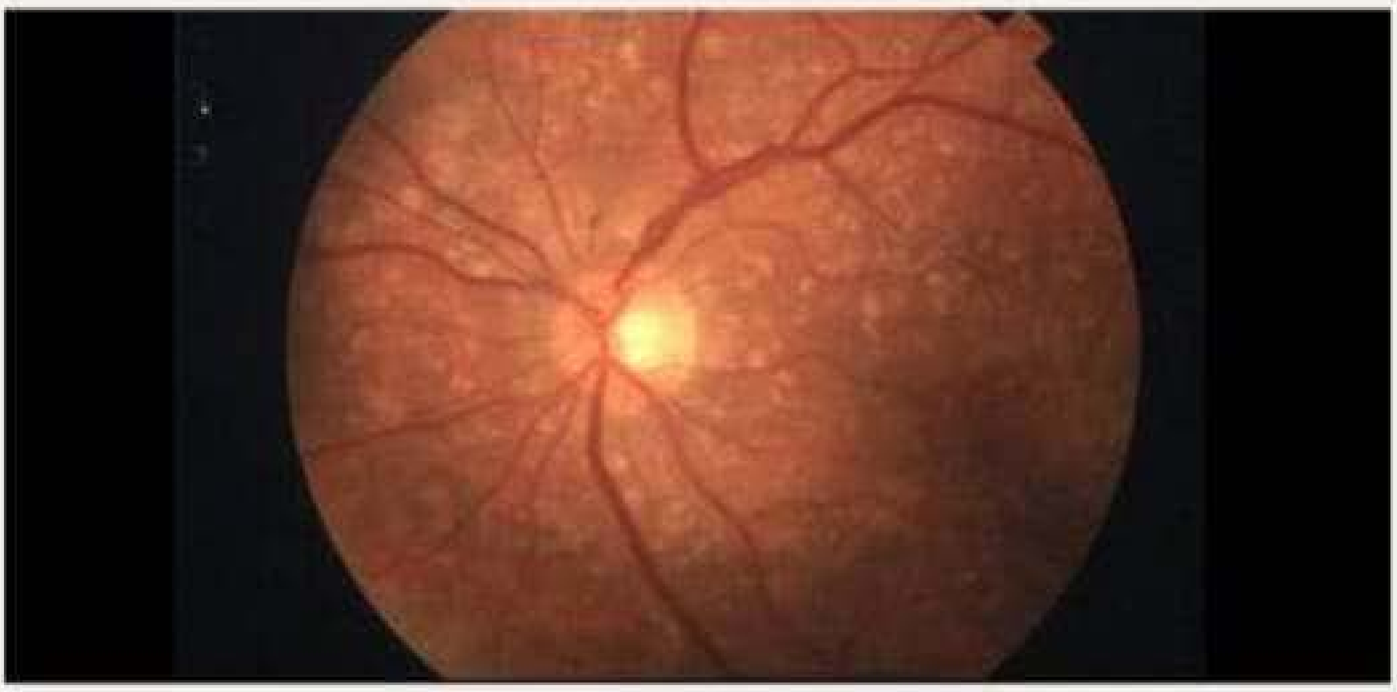

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Your answer was incorrect

A Vitamin B_{12} levels

B Fasting blood glucose

C Folic acid levels

D Genetic testing

E Vitamin A levels

Explanation

D

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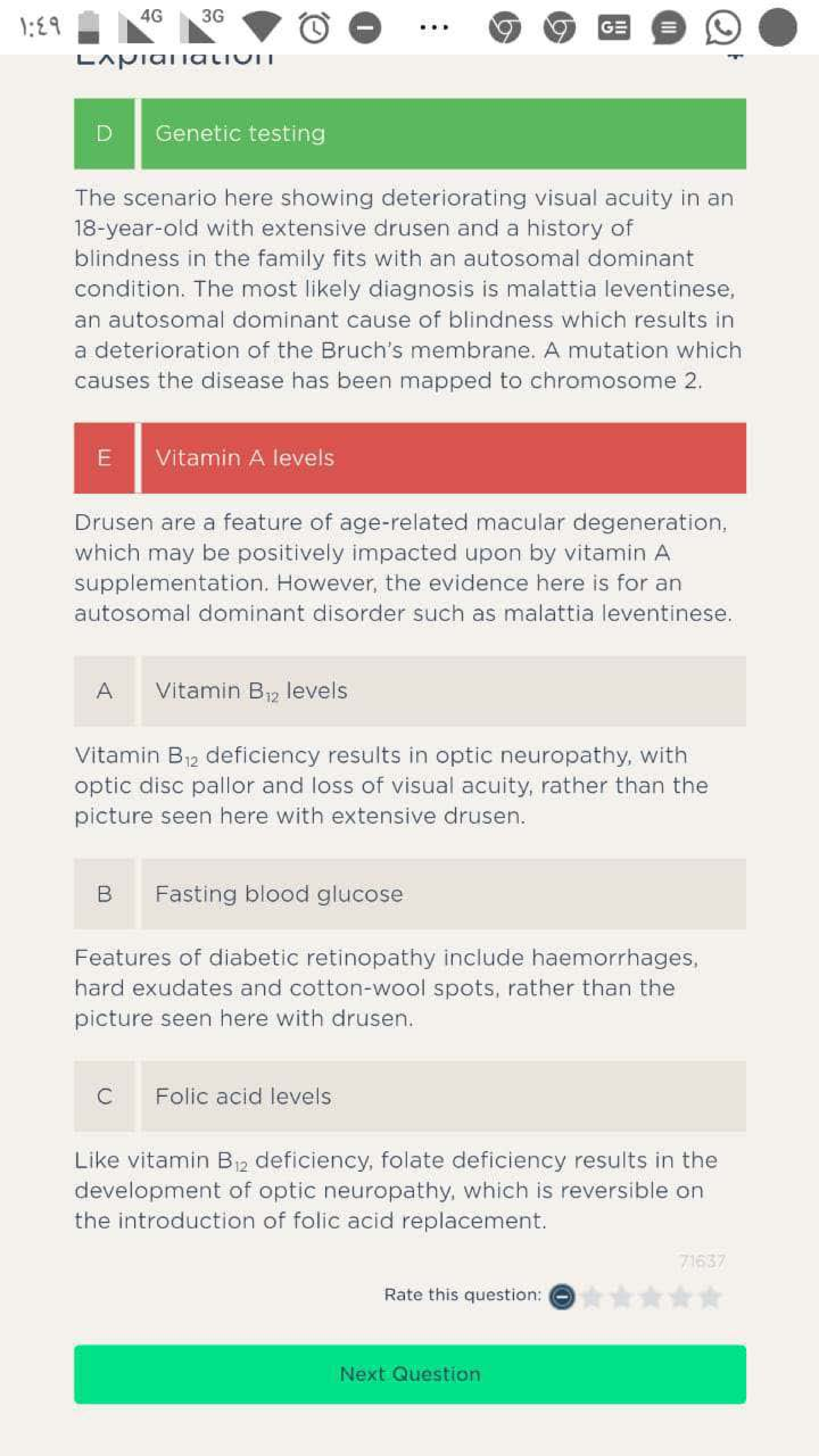


Explanation

D	Genetic testing

The scenario here showing deteriorating visual acuity in an 18-year-old with extensive drusen and a history of blindness in the family fits with an autosomal dominant condition. The most likely diagnosis is malattia leventinese, an autosomal dominant cause of blindness which results in a deterioration of the Bruch's membrane. A mutation which causes the disease has been mapped to chromosome 2.

E	Vitamin A levels

Drusen are a feature of age-related macular degeneration, which may be positively impacted upon by vitamin A supplementation. However, the evidence here is for an autosomal dominant disorder such as malattia leventinese.

A	Vitamin B_{12} levels

Vitamin B_{12} deficiency results in optic neuropathy, with optic disc pallor and loss of visual acuity, rather than the picture seen here with extensive drusen.

B	Fasting blood glucose

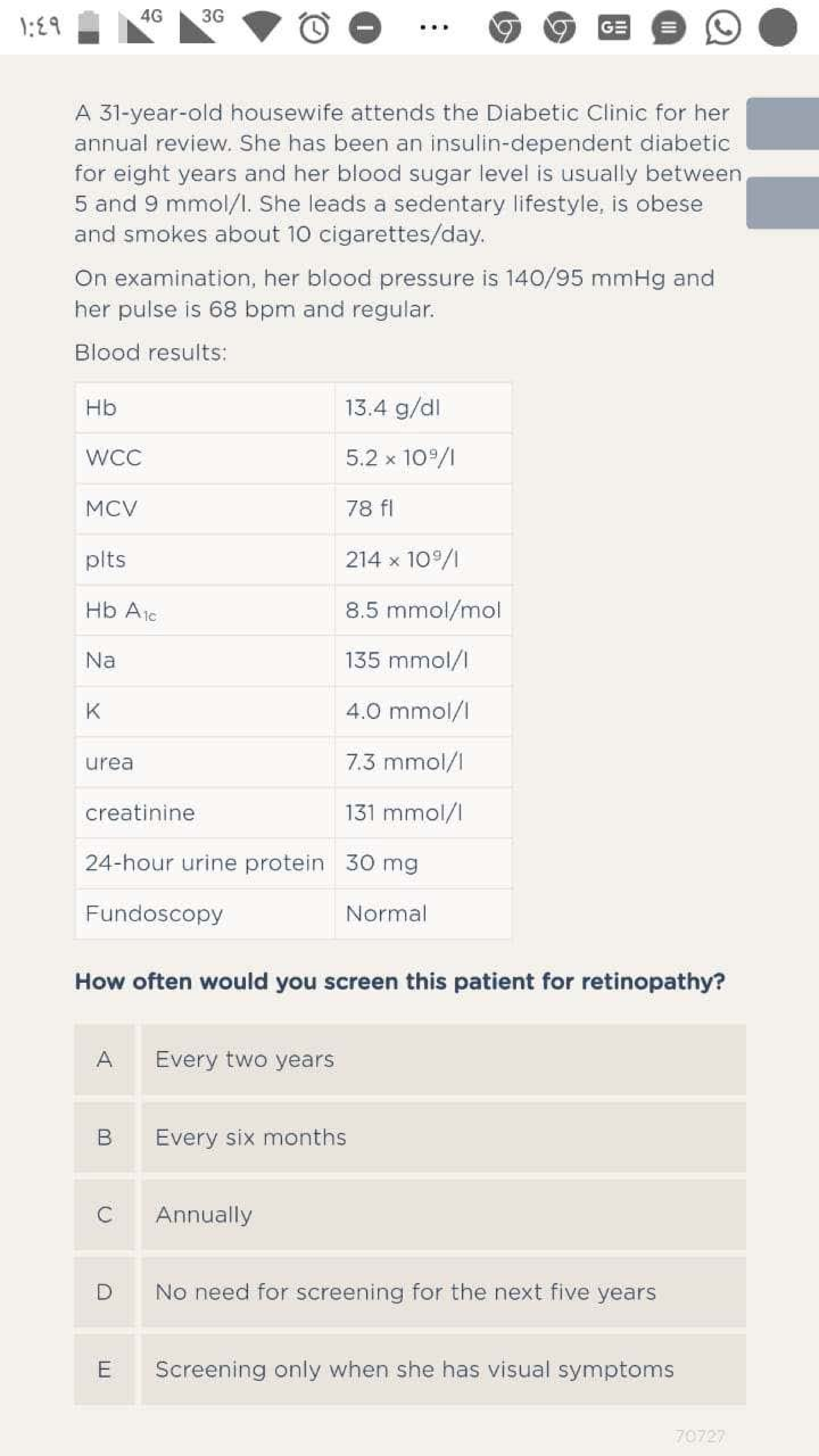
Features of diabetic retinopathy include haemorrhages, hard exudates and cotton-wool spots, rather than the picture seen here with drusen.

C	Folic acid levels

Like vitamin B_{12} deficiency, folate deficiency results in the development of optic neuropathy, which is reversible on the introduction of folic acid replacement.

71637

Rate this question: ⊖ ★★★★★



A 31-year-old housewife attends the Diabetic Clinic for her annual review. She has been an insulin-dependent diabetic for eight years and her blood sugar level is usually between 5 and 9 mmol/l. She leads a sedentary lifestyle, is obese and smokes about 10 cigarettes/day.

On examination, her blood pressure is 140/95 mmHg and her pulse is 68 bpm and regular.

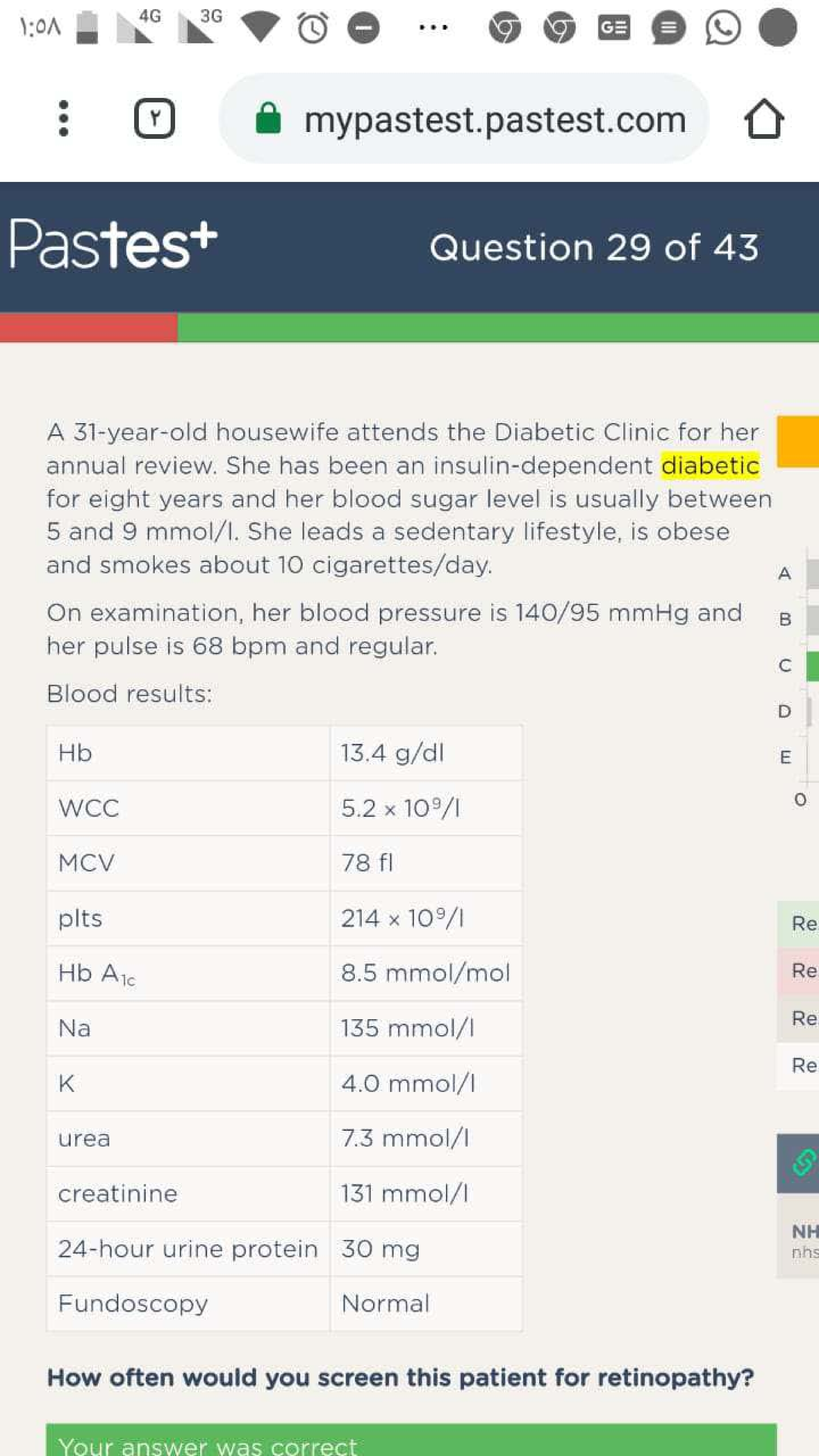
Blood results:

Hb	13.4 g/dl
WCC	5.2×10^9/l
MCV	78 fl
plts	214×10^9/l
Hb A_{1c}	8.5 mmol/mol
Na	135 mmol/l
K	4.0 mmol/l
urea	7.3 mmol/l
creatinine	131 mmol/l
24-hour urine protein	30 mg
Fundoscopy	Normal

How often would you screen this patient for retinopathy?

A	Every two years
B	Every six months
C	Annually
D	No need for screening for the next five years
E	Screening only when she has visual symptoms

70727



Question 29 of 43

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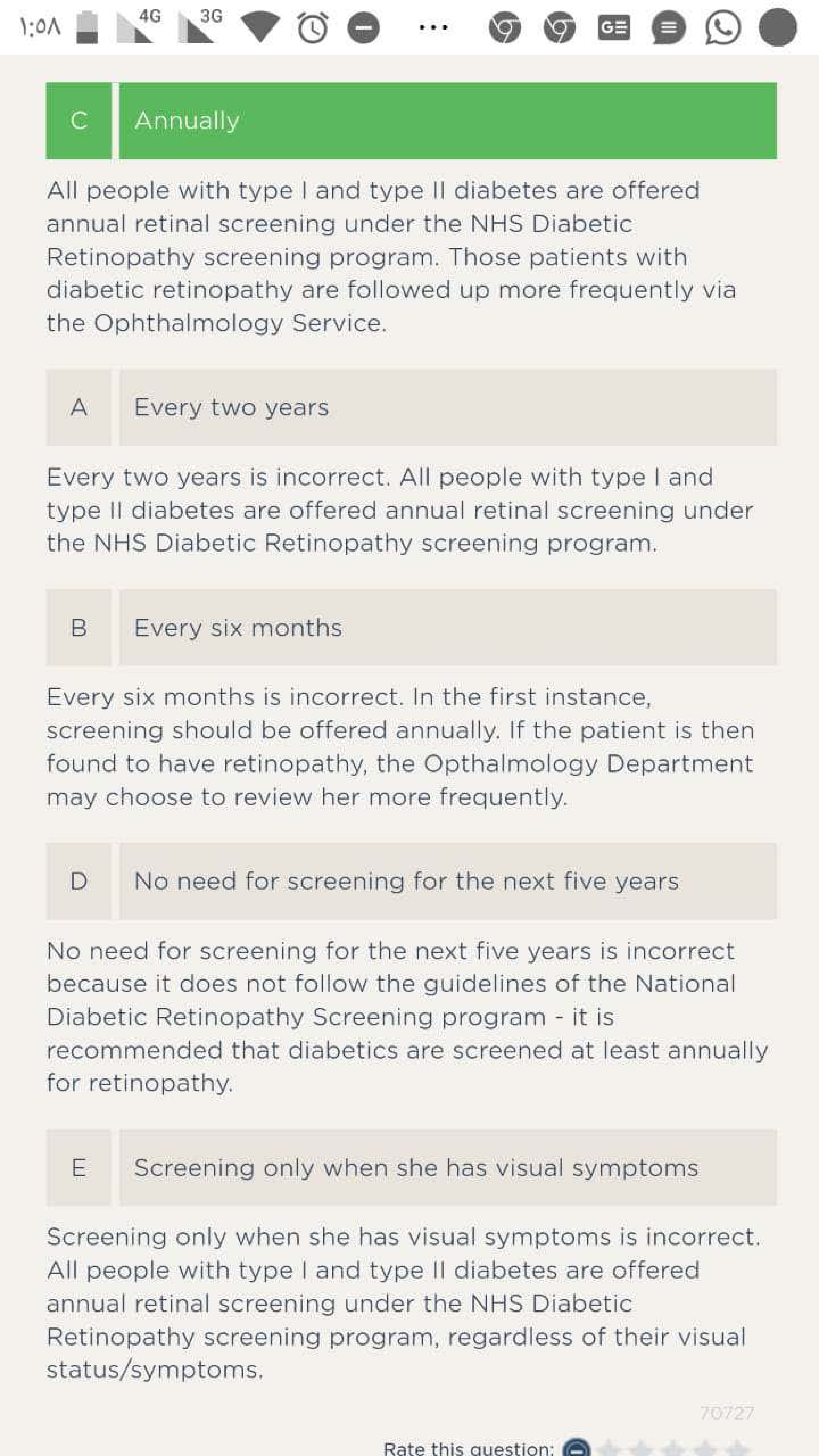
How often would you screen this patient for retinopathy?

Your answer was correct



C Annually

All people with type I and type II diabetes are offered annual retinal screening under the NHS Diabetic Retinopathy screening program. Those patients with diabetic retinopathy are followed up more frequently via the Ophthalmology Service.

A Every two years

Every two years is incorrect. All people with type I and type II diabetes are offered annual retinal screening under the NHS Diabetic Retinopathy screening program.

B Every six months

Every six months is incorrect. In the first instance, screening should be offered annually. If the patient is then found to have retinopathy, the Opthalmology Department may choose to review her more frequently.

D No need for screening for the next five years

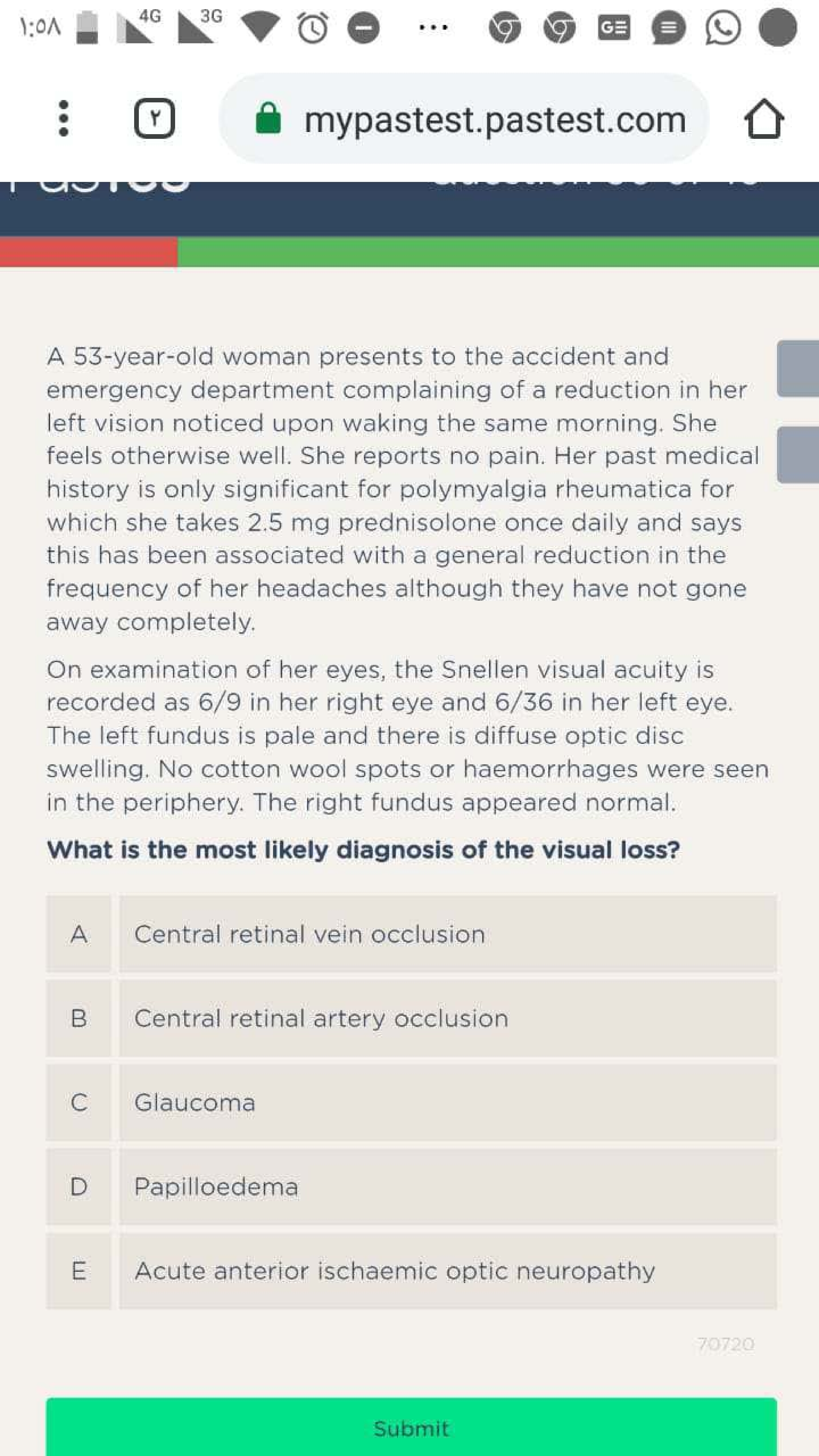
No need for screening for the next five years is incorrect because it does not follow the guidelines of the National Diabetic Retinopathy Screening program - it is recommended that diabetics are screened at least annually for retinopathy.

E Screening only when she has visual symptoms

Screening only when she has visual symptoms is incorrect. All people with type I and type II diabetes are offered annual retinal screening under the NHS Diabetic Retinopathy screening program, regardless of their visual status/symptoms.

70727

Rate this question:



A 53-year-old woman presents to the accident and emergency department complaining of a reduction in her left vision noticed upon waking the same morning. She feels otherwise well. She reports no pain. Her past medical history is only significant for polymyalgia rheumatica for which she takes 2.5 mg prednisolone once daily and says this has been associated with a general reduction in the frequency of her headaches although they have not gone away completely.

On examination of her eyes, the Snellen visual acuity is recorded as 6/9 in her right eye and 6/36 in her left eye. The left fundus is pale and there is diffuse optic disc swelling. No cotton wool spots or haemorrhages were seen in the periphery. The right fundus appeared normal.

What is the most likely diagnosis of the visual loss?

A Central retinal vein occlusion

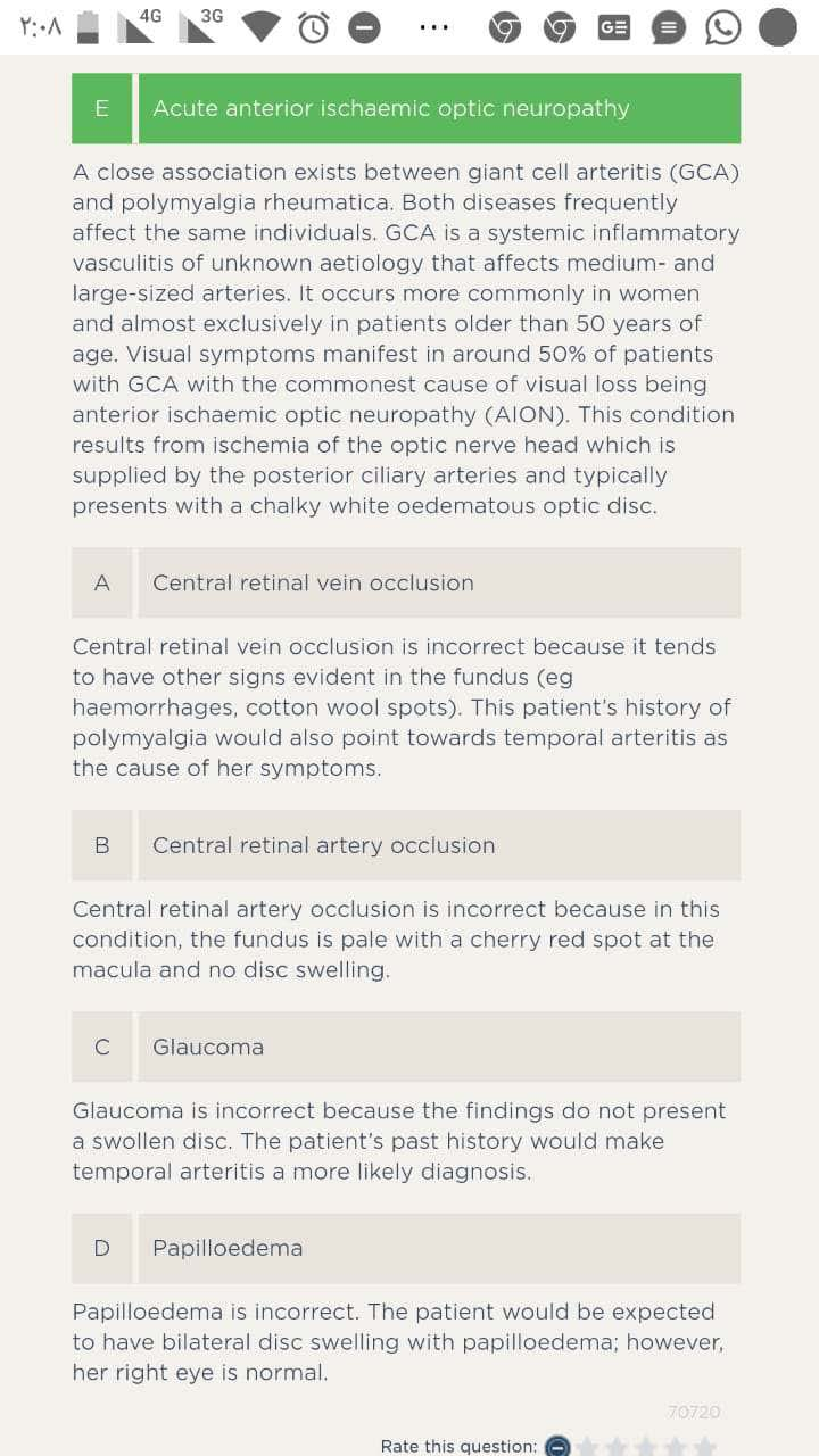
B Central retinal artery occlusion

C Glaucoma

D Papilloedema

E Acute anterior ischaemic optic neuropathy

70720



E | Acute anterior ischaemic optic neuropathy

A close association exists between giant cell arteritis (GCA) and polymyalgia rheumatica. Both diseases frequently affect the same individuals. GCA is a systemic inflammatory vasculitis of unknown aetiology that affects medium- and large-sized arteries. It occurs more commonly in women and almost exclusively in patients older than 50 years of age. Visual symptoms manifest in around 50% of patients with GCA with the commonest cause of visual loss being anterior ischaemic optic neuropathy (AION). This condition results from ischemia of the optic nerve head which is supplied by the posterior ciliary arteries and typically presents with a chalky white oedematous optic disc.

A | Central retinal vein occlusion

Central retinal vein occlusion is incorrect because it tends to have other signs evident in the fundus (eg haemorrhages, cotton wool spots). This patient's history of polymyalgia would also point towards temporal arteritis as the cause of her symptoms.

B | Central retinal artery occlusion

Central retinal artery occlusion is incorrect because in this condition, the fundus is pale with a cherry red spot at the macula and no disc swelling.

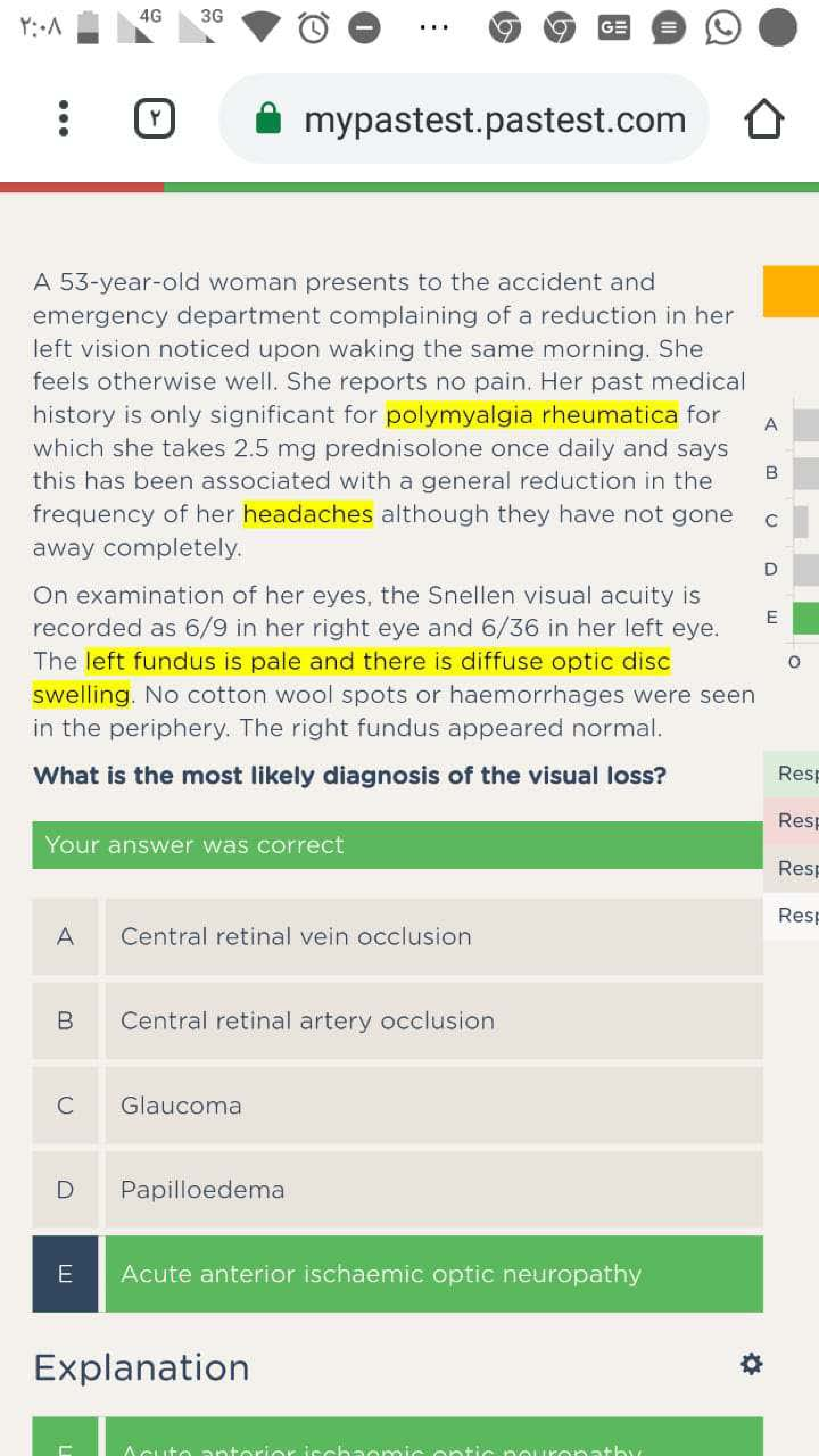
C | Glaucoma

Glaucoma is incorrect because the findings do not present a swollen disc. The patient's past history would make temporal arteritis a more likely diagnosis.

D | Papilloedema

Papilloedema is incorrect. The patient would be expected to have bilateral disc swelling with papilloedema; however, her right eye is normal.

70720



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A	Central retinal vein occlusion
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E	Acute anterior ischaemic optic neuropathy

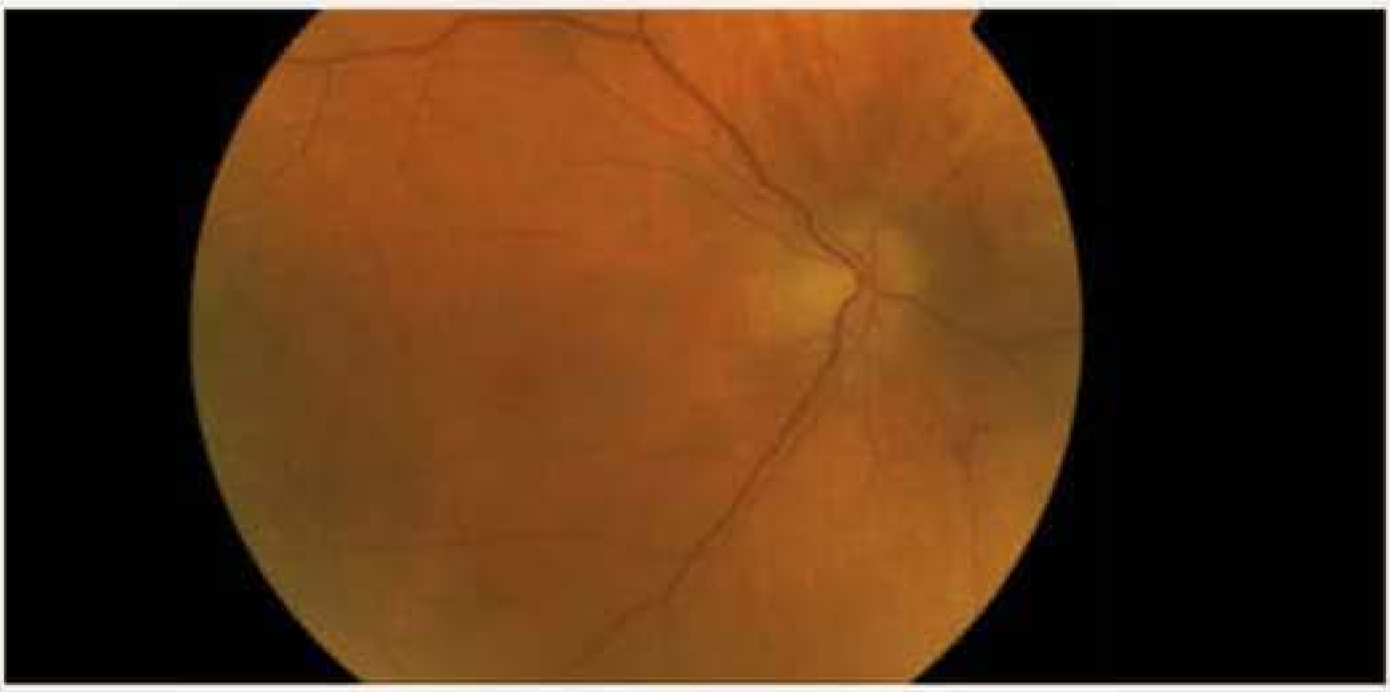
Explanation

E Acute anterior ischaemic optic neuropathy

A 27-year-old woman, who is taking the combined oral contraceptive pill (OCP), comes to the clinic with worsening headaches, particularly in the morning, when she lies flat, and when she strains. They are often associated with blurred vision or temporary loss of colour vision.

Her blood pressure is 152/82 mmHg, pulse is 68 bpm and regular, her body mass index (BMI) is 32 kg/m^2.

A picture of her right retina is shown below.



Changes on the left-hand side are similar in appearance.

A computed tomography (CT) head has been unremarkable; cerebrospinal fluid (CSF) opening pressure is 28 cmH_2O.

Visual acuity appears normal.

Which of the following is the most appropriate next intervention?

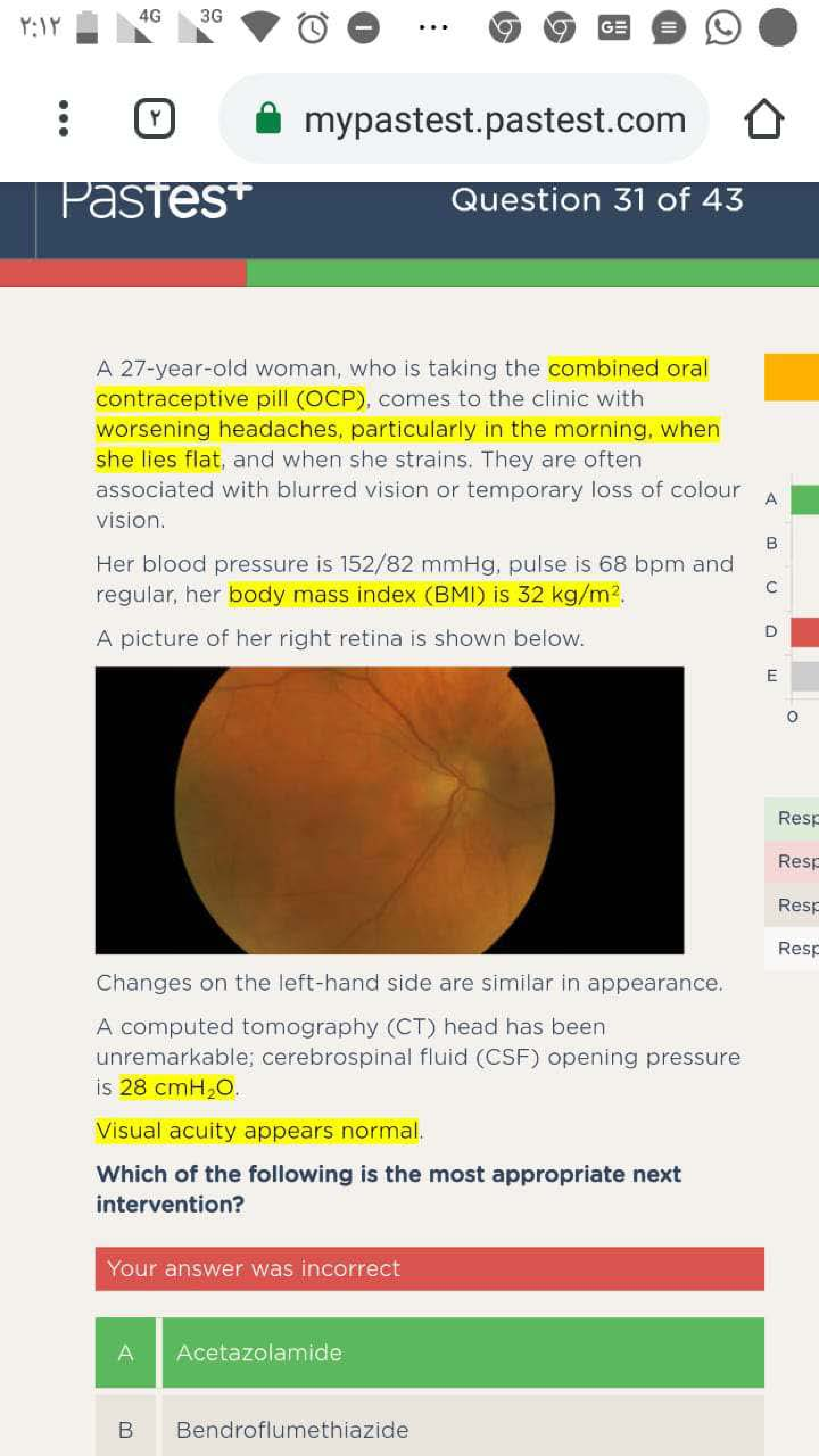
A Acetazolamide

B Bendroflumethiazide

C Prednisolone

D Stop the OCP

E Serial therapeutic lumbar puncture



Question 31 of 43

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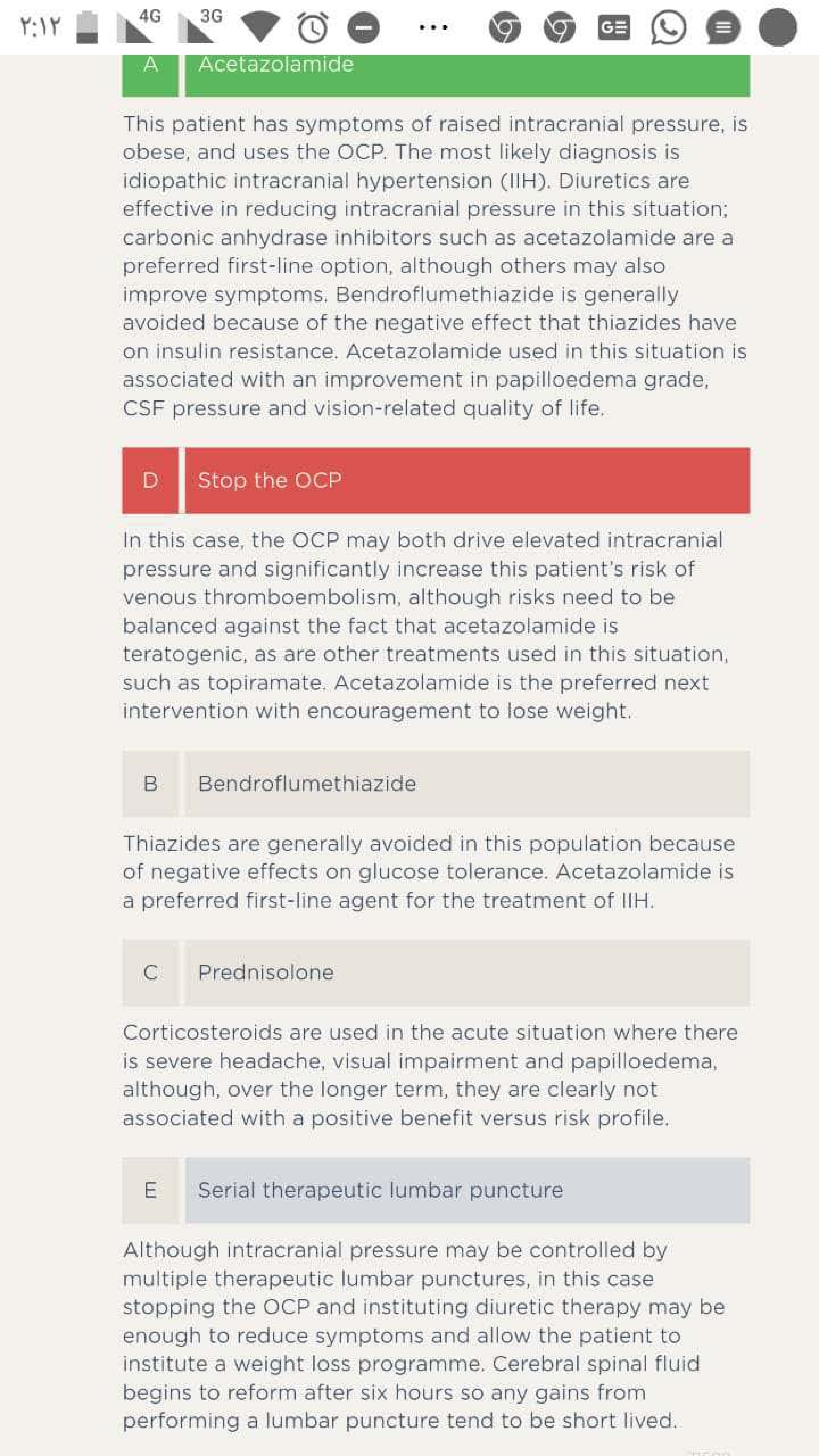
Your answer was incorrect

A	Acetazolamide
B	Bendroflumethiazide



A 🟩 Acetazolamide

This patient has symptoms of raised intracranial pressure, is obese, and uses the OCP. The most likely diagnosis is idiopathic intracranial hypertension (IIH). Diuretics are effective in reducing intracranial pressure in this situation; carbonic anhydrase inhibitors such as acetazolamide are a preferred first-line option, although others may also improve symptoms. Bendroflumethiazide is generally avoided because of the negative effect that thiazides have on insulin resistance. Acetazolamide used in this situation is associated with an improvement in papilloedema grade, CSF pressure and vision-related quality of life.

D 🟥 Stop the OCP

In this case, the OCP may both drive elevated intracranial pressure and significantly increase this patient's risk of venous thromboembolism, although risks need to be balanced against the fact that acetazolamide is teratogenic, as are other treatments used in this situation, such as topiramate. Acetazolamide is the preferred next intervention with encouragement to lose weight.

B Bendroflumethiazide

Thiazides are generally avoided in this population because of negative effects on glucose tolerance. Acetazolamide is a preferred first-line agent for the treatment of IIH.

C Prednisolone

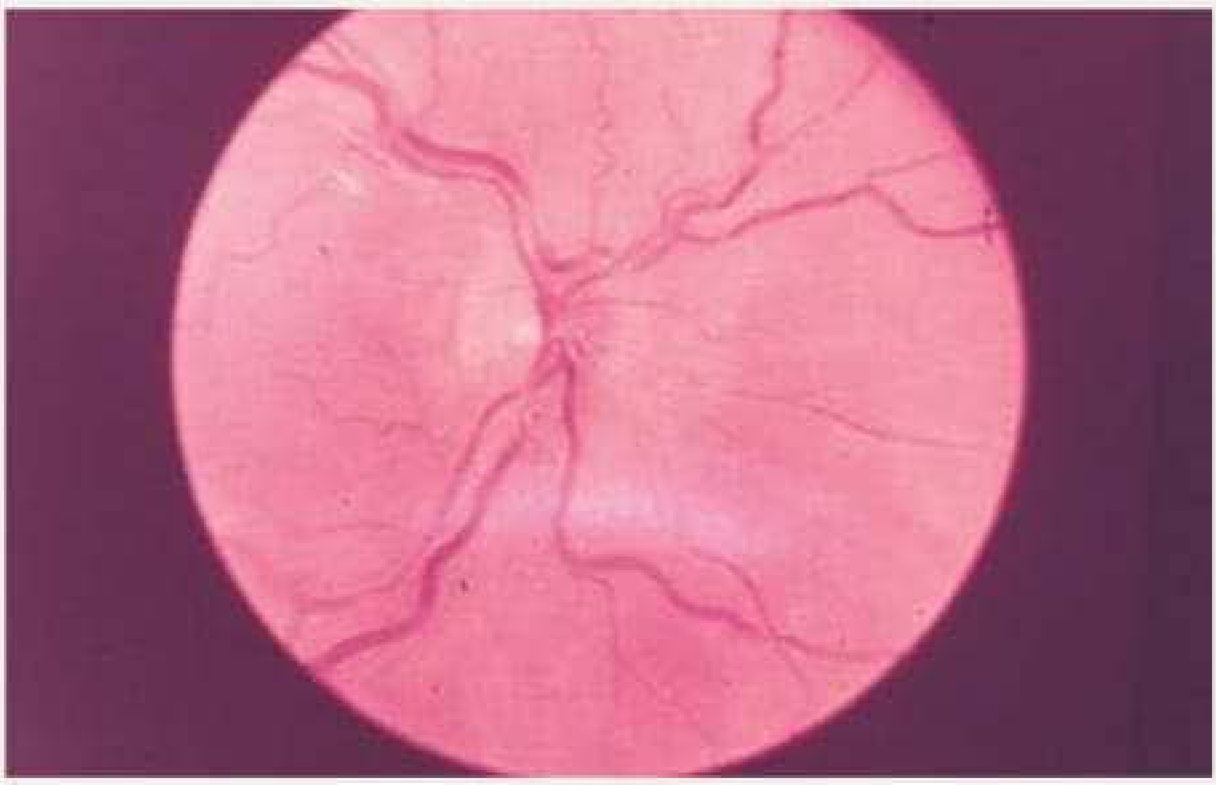
Corticosteroids are used in the acute situation where there is severe headache, visual impairment and papilloedema, although, over the longer term, they are clearly not associated with a positive benefit versus risk profile.

E Serial therapeutic lumbar puncture

Although intracranial pressure may be controlled by multiple therapeutic lumbar punctures, in this case stopping the OCP and instituting diuretic therapy may be enough to reduce symptoms and allow the patient to institute a weight loss programme. Cerebral spinal fluid begins to reform after six hours so any gains from performing a lumbar puncture tend to be short lived.

A 65-year-old man presents to the Emergency Department with reduced vision in the right eye noticed while taking a photograph.

On examination, he has a right afferent pupillary defect and the following appearance on fundoscopy:

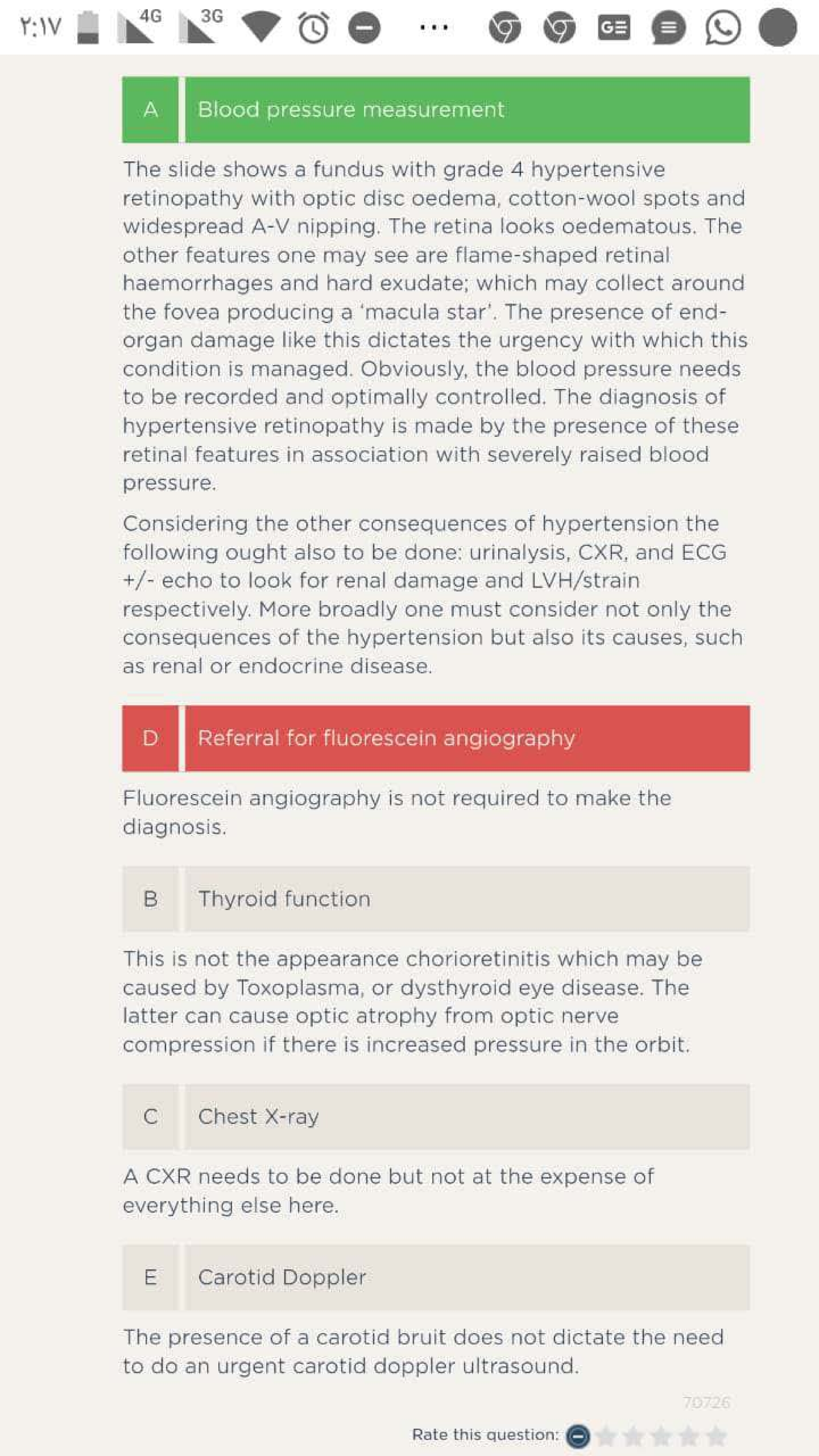


Which one of the following should be undertaken soon?

A	Blood pressure measurement
B	Thyroid function
C	Chest X-ray
D	Referral for fluorescein angiography
E	Carotid Doppler

70726

Submit



A Blood pressure measurement

The slide shows a fundus with grade 4 hypertensive retinopathy with optic disc oedema, cotton-wool spots and widespread A-V nipping. The retina looks oedematous. The other features one may see are flame-shaped retinal haemorrhages and hard exudate; which may collect around the fovea producing a 'macula star'. The presence of end-organ damage like this dictates the urgency with which this condition is managed. Obviously, the blood pressure needs to be recorded and optimally controlled. The diagnosis of hypertensive retinopathy is made by the presence of these retinal features in association with severely raised blood pressure.

Considering the other consequences of hypertension the following ought also to be done: urinalysis, CXR, and ECG +/- echo to look for renal damage and LVH/strain respectively. More broadly one must consider not only the consequences of the hypertension but also its causes, such as renal or endocrine disease.

D Referral for fluorescein angiography

Fluorescein angiography is not required to make the diagnosis.

B Thyroid function

This is not the appearance chorioretinitis which may be caused by Toxoplasma, or dysthyroid eye disease. The latter can cause optic atrophy from optic nerve compression if there is increased pressure in the orbit.

C Chest X-ray

A CXR needs to be done but not at the expense of everything else here.

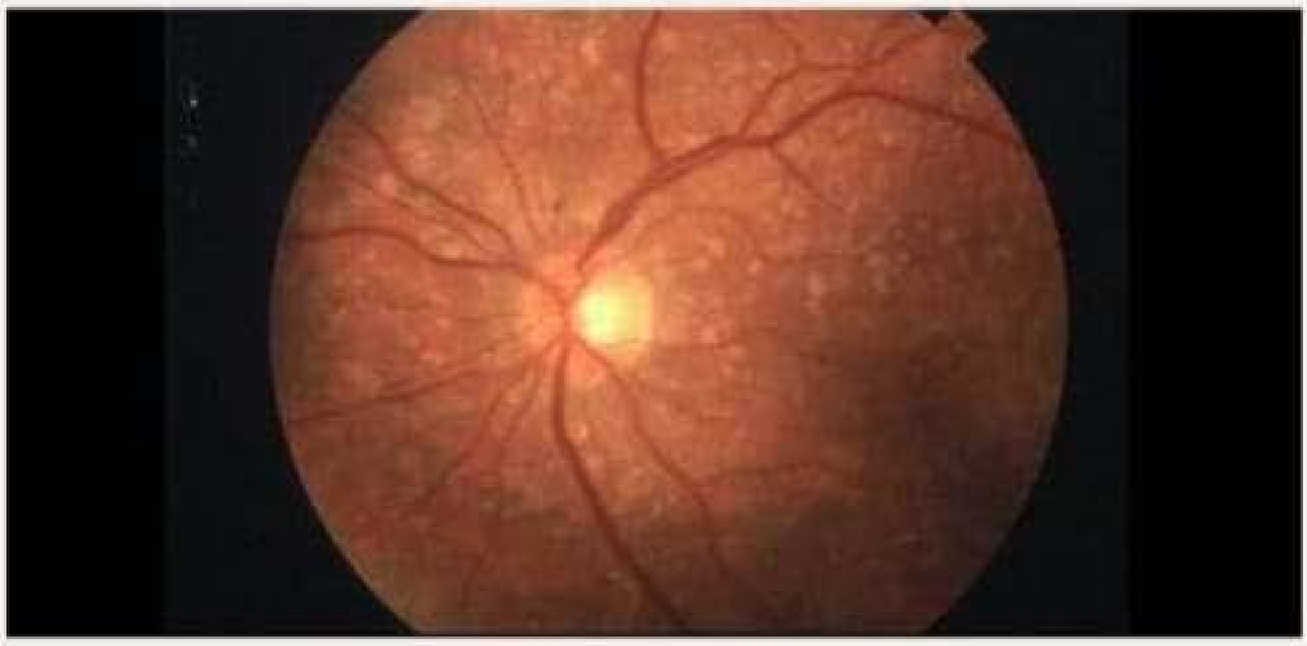
E Carotid Doppler

The presence of a carotid bruit does not dictate the need to do an urgent carotid doppler ultrasound.

70726

A 22-year-old man presents to the Ophthalmology Clinic for review. He has suffered from a deterioration in vision, particularly at night over the past six months. He feels that he is now unable to drive. His mother, uncle and an older cousin are now registered blind.

His left retina is shown below.



Appearances are similar on the right-hand side.

Which of the following is the most appropriate intervention?

A	Acetazolamide
B	Bevacizumab
C	Pan-retinal photocoagulation
D	Provision of low-vision aids
E	Triamcinolone

71638

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Previous Q...

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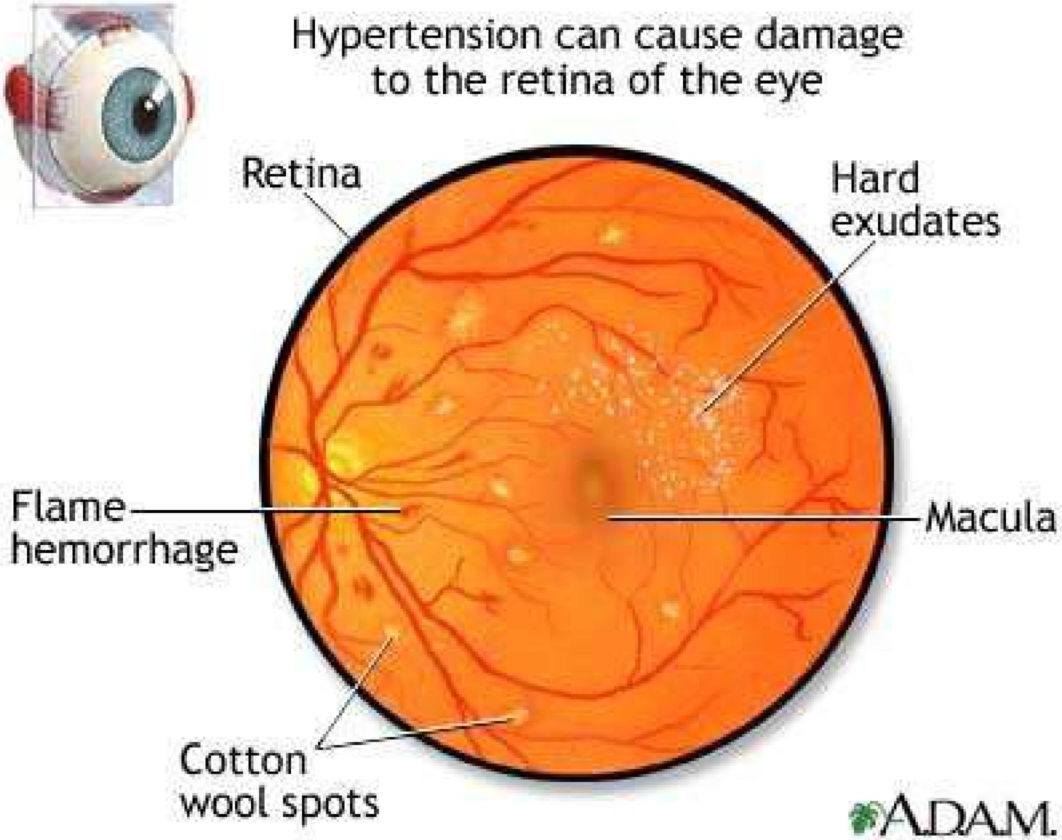
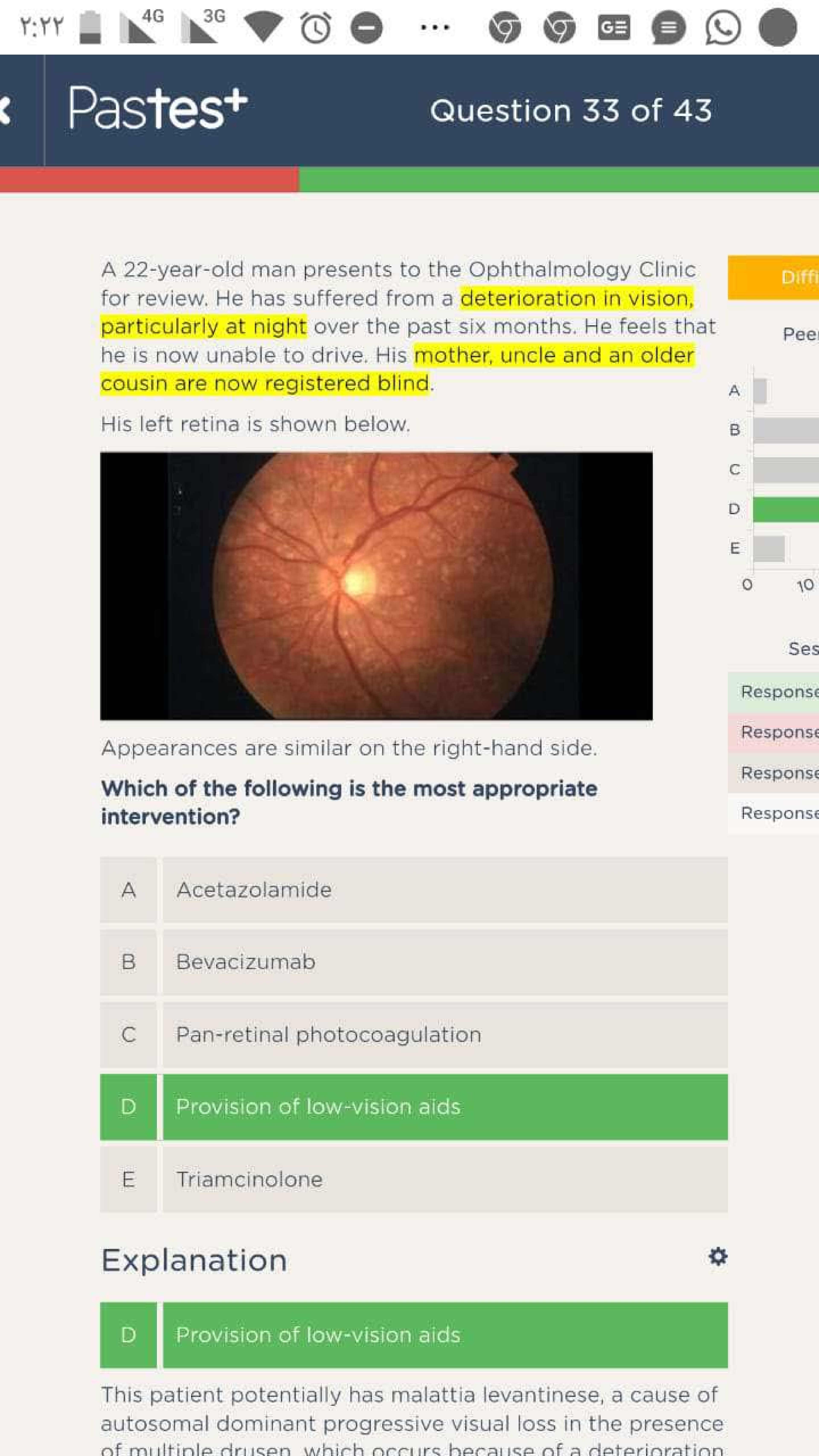


Hypertension can cause damage to the retina of the eye



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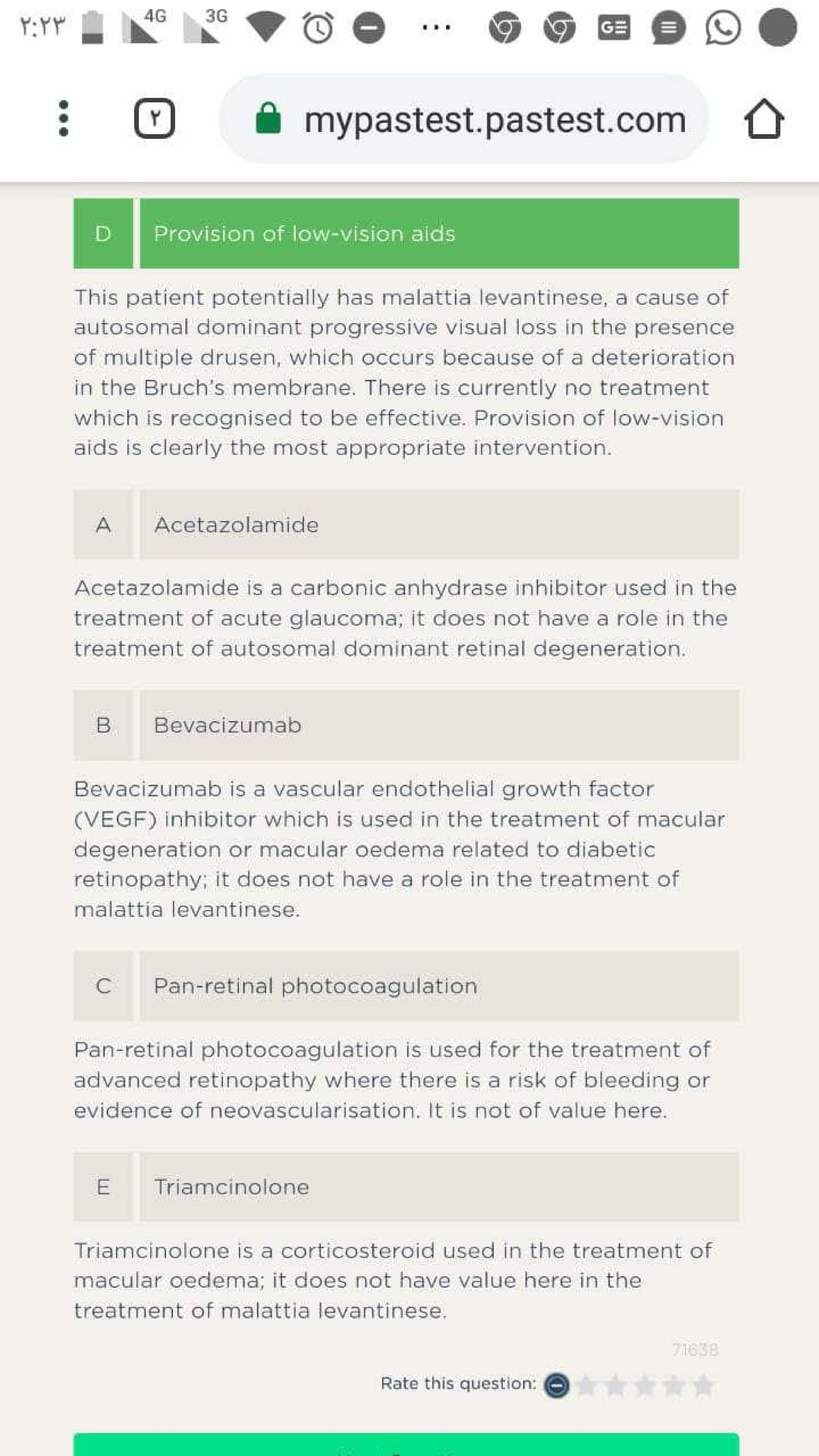
Which of the following is the most appropriate intervention?

A	Acetazolamide
B	Bevacizumab
C	Pan-retinal photocoagulation
D	Provision of low-vision aids
E	Triamcinolone

Explanation

D Provision of low-vision aids

This patient potentially has malattia levantinese, a cause of autosomal dominant progressive visual loss in the presence of multiple drusen, which occurs because of a deterioration



D Provision of low-vision aids

This patient potentially has malattia levantinese, a cause of autosomal dominant progressive visual loss in the presence of multiple drusen, which occurs because of a deterioration in the Bruch's membrane. There is currently no treatment which is recognised to be effective. Provision of low-vision aids is clearly the most appropriate intervention.

A Acetazolamide

Acetazolamide is a carbonic anhydrase inhibitor used in the treatment of acute glaucoma; it does not have a role in the treatment of autosomal dominant retinal degeneration.

B Bevacizumab

Bevacizumab is a vascular endothelial growth factor (VEGF) inhibitor which is used in the treatment of macular degeneration or macular oedema related to diabetic retinopathy; it does not have a role in the treatment of malattia levantinese.

C Pan-retinal photocoagulation

Pan-retinal photocoagulation is used for the treatment of advanced retinopathy where there is a risk of bleeding or evidence of neovascularisation. It is not of value here.

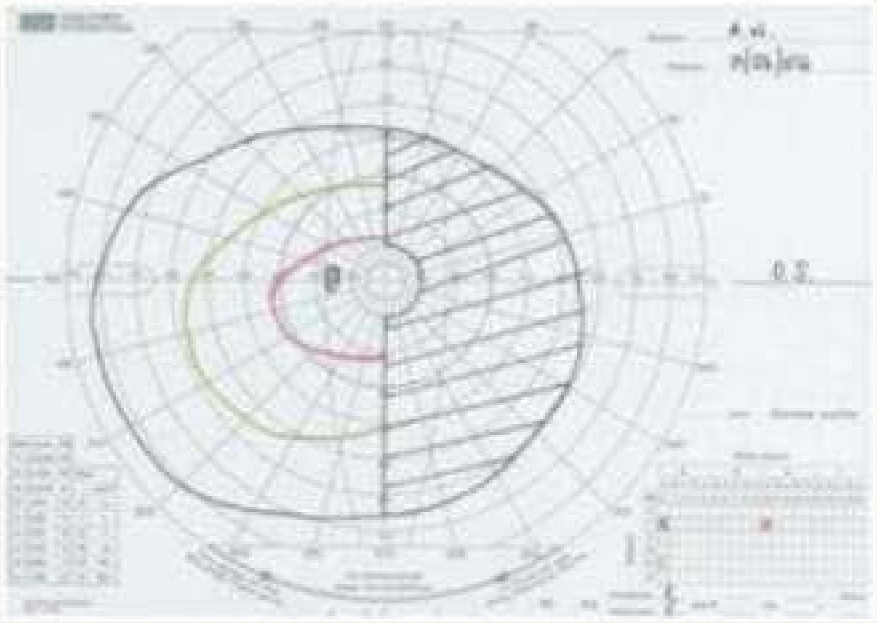
E Triamcinolone

Triamcinolone is a corticosteroid used in the treatment of macular oedema; it does not have value here in the treatment of malattia levantinese.

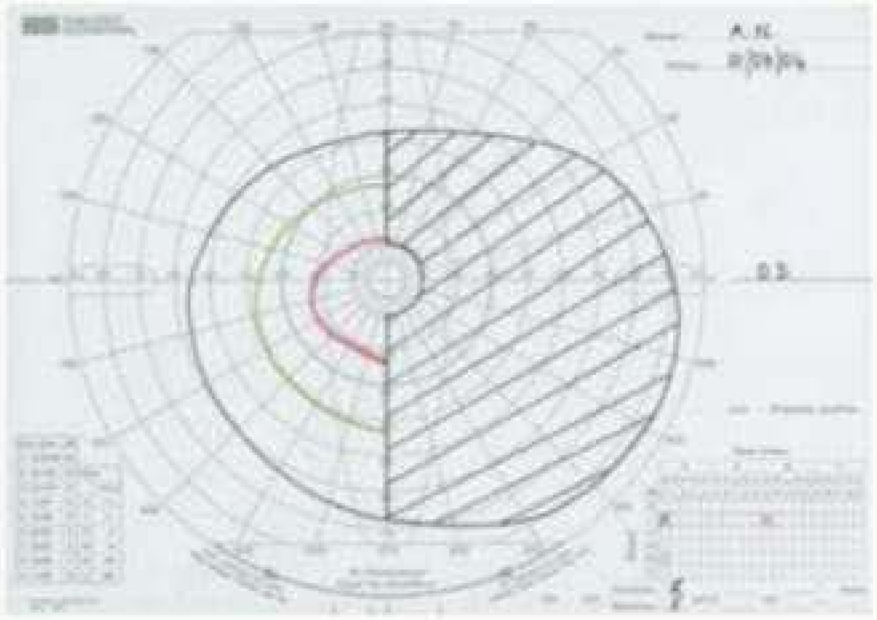
71638

Study the Goldmann visual field test results shown below;

Left eye;



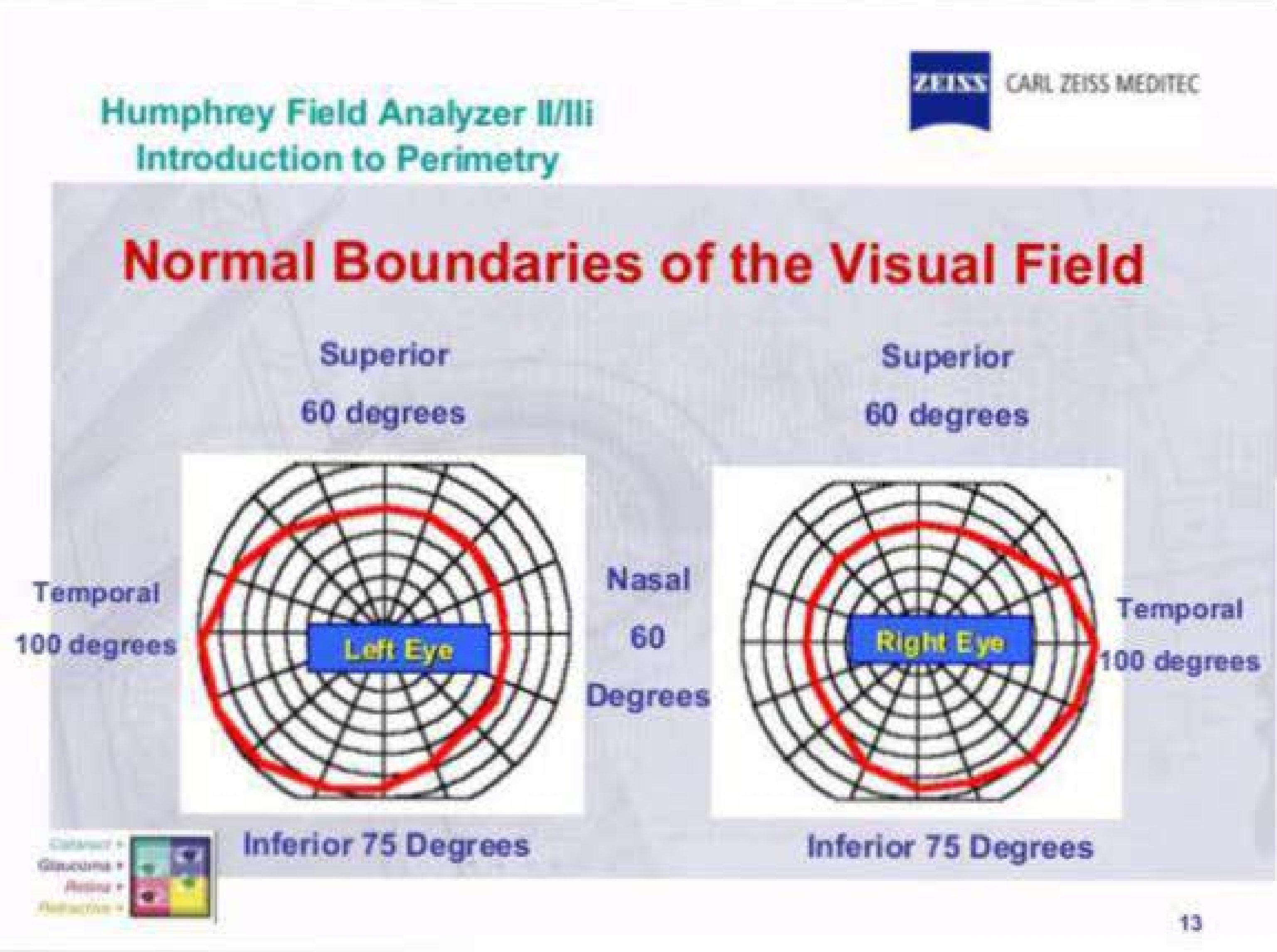
Right eye;



Where is the pathological lesion?

A	Left occipital cortex
B	Left temporal lobe (Meyer's loop)
C	Right occipital cortex
D	Right optic nerve
E	Right parietal lobe

70722



Humphrey Field Analyzer II/IIi
Introduction to Perimetry

ZEISS CARL ZEISS MEDITEC

Normal Boundaries of the Visual Field

Superior
60 degrees

Superior
60 degrees

Temporal
100 degrees

Left Eye

Nasal
60
Degrees

Right Eye

Temporal
100 degrees

Inferior 75 Degrees

Inferior 75 Degrees

Cataract •
Glaucoma •
Retina •
Refractive •

A Left occipital cortex

By convention visual fields are recorded as what the patient sees. Therefore the right eye is on the right and the left eye on the left. They should be labelled to avoid confusion, but the position of the blind spots tells one which eye is which. Most other recordings of a clinical examination are recorded as if one is looking at the patient.

These fields show a homonymous hemianopia with macular sparing. The calcarine cortex, at the occipital lobe receives its blood supply from the two posterior cerebral arteries. The tip of the occipital pole, however, receives a dual blood supply via the middle cerebral artery. It is at the tip that macular vision is represented. Thus, with a stroke affecting the posterior cerebral artery (here on the left side) a homonymous hemianopia to all vision on the right occurs, but the patient will fortunately be able to read as macula vision is spared.

E Right parietal lobe

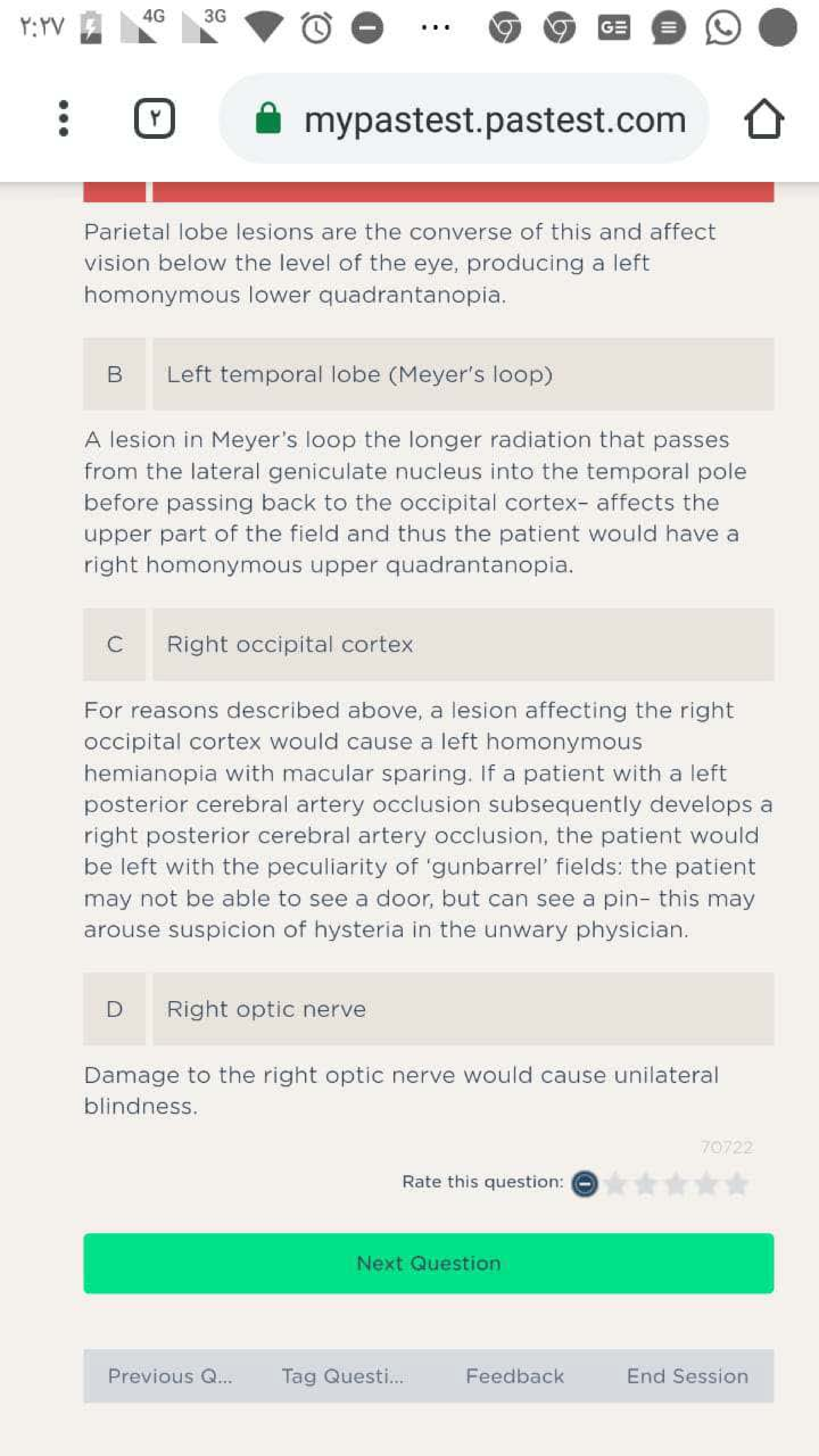
Parietal lobe lesions are the converse of this and affect vision below the level of the eye, producing a left homonymous lower quadrantanopia.

B Left temporal lobe (Meyer's loop)

A lesion in Meyer's loop the longer radiation that passes from the lateral geniculate nucleus into the temporal pole before passing back to the occipital cortex– affects the upper part of the field and thus the patient would have a right homonymous upper quadrantanopia.

C Right occipital cortex

For reasons described above, a lesion affecting the right occipital cortex would cause a left homonymous hemianopia with macular sparing. If a patient with a left posterior cerebral artery occlusion subsequently develops a right posterior cerebral artery occlusion, the patient would be left with the peculiarity of 'gunbarrel' fields: the patient



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C	Right occipital cortex

For reasons described above, a lesion affecting the right occipital cortex would cause a left homonymous hemianopia with macular sparing. If a patient with a left posterior cerebral artery occlusion subsequently develops a right posterior cerebral artery occlusion, the patient would be left with the peculiarity of 'gunbarrel' fields: the patient may not be able to see a door, but can see a pin– this may arouse suspicion of hysteria in the unwary physician.

D	Right optic nerve

Damage to the right optic nerve would cause unilateral blindness.

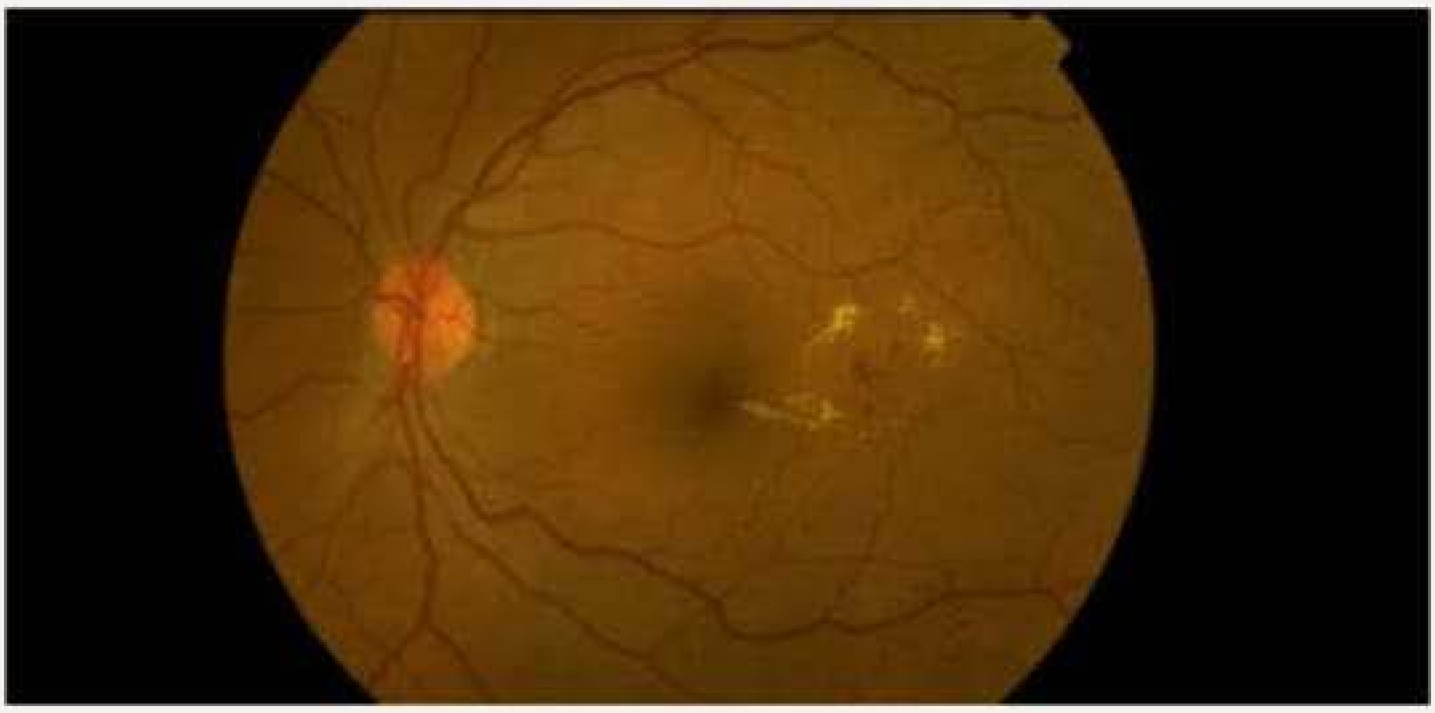
70722

A 54-year-old woman with type 2 diabetes mellitus has been referred to the Diabetic Clinic by her general practitioner (GP) for difficulty in reading small print. This visual problem has gradually developed over several months. She has been diabetic for 11 years and takes metformin monotherapy.

The patient is obese and smokes 15 cigarettes a day. She has a past medical history of hypertension and hyperlipidaemia and takes atenolol 50 mg once daily (od).

On examination, her blood pressure was 140/85 mmHg and her pulse was 66 bpm and regular.

Fundoscopy results are shown below.



Her HbA1c was 63.9 mmol/mol (8.0%).

How would you best manage this patient with respect to the eye changes?

A Referral to an ophthalmologist within 13 weeks for assessment

B Screen the patient every 6 months for close follow-up

C Screen the patient annually for early detection and treatment of proliferative retinopathy

D Advise the patient to see an optician for spectacles

E Add a sulphonylurea to the drug treatment

assessment

The fundoscopic appearance of this patient shows moderate non-proliferative diabetic retinopathy with haemorrhages and some hard exudates which are close to, but not impeding on, the macula. There is also evidence of macula oedema. As such, and in light of her adverse risk profile (obesity and current smoker), this patient warrants a referral to an ophthalmologist for assessment for maculopathy and possible photocoagulation, which will help stabilise visual acuity. The ability to alter the course of visual loss in diabetic macular involvement favourably is a major advance. The patient should be cautioned that the most likely result of treatment is stabilisation, not improvement, of her visual acuity.

B	Screen the patient every 6 months for close follow-up

This advice does not follow the National Diabetic Screening Guidelines and runs the risk of significant deterioration in vision occurring, which may not be recoverable, between visits.

C	Screen the patient annually for early detection and treatment of proliferative retinopathy

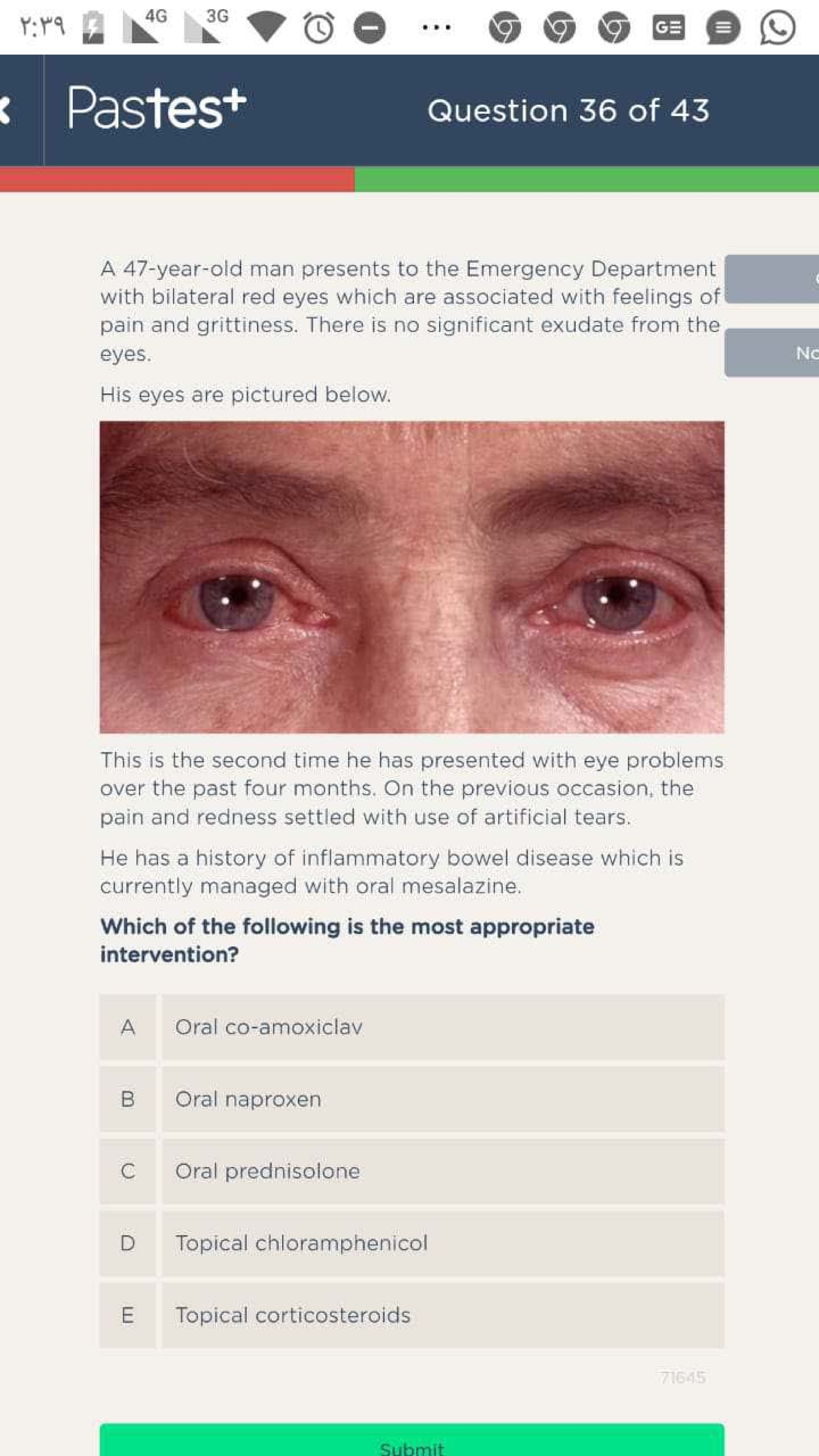
With a gap of 1 year between appointments, there is significant risk of complications of diabetic retinopathy such as retinal haemorrhage, with possible detachment occurring.

D	Advise the patient to see an optician for spectacles

This patient has maculopathy and needs assessment. Although a prescription for spectacles might improve visual acuity in the short term, over the longer term, it will not prevent complications of retinopathy.

E	Add a sulphonylurea to the drug treatment

Although there is a need to improve glucose control, which may reduce the risk of retinopathy in the long term, over the short term, diabetic eye disease may actually worsen. Assessment by an ophthalmologist is therefore essential.



Question 36 of 43

A 47-year-old man presents to the Emergency Department with bilateral red eyes which are associated with feelings of pain and grittiness. There is no significant exudate from the eyes.

His eyes are pictured below.

This is the second time he has presented with eye problems over the past four months. On the previous occasion, the pain and redness settled with use of artificial tears.

He has a history of inflammatory bowel disease which is currently managed with oral mesalazine.

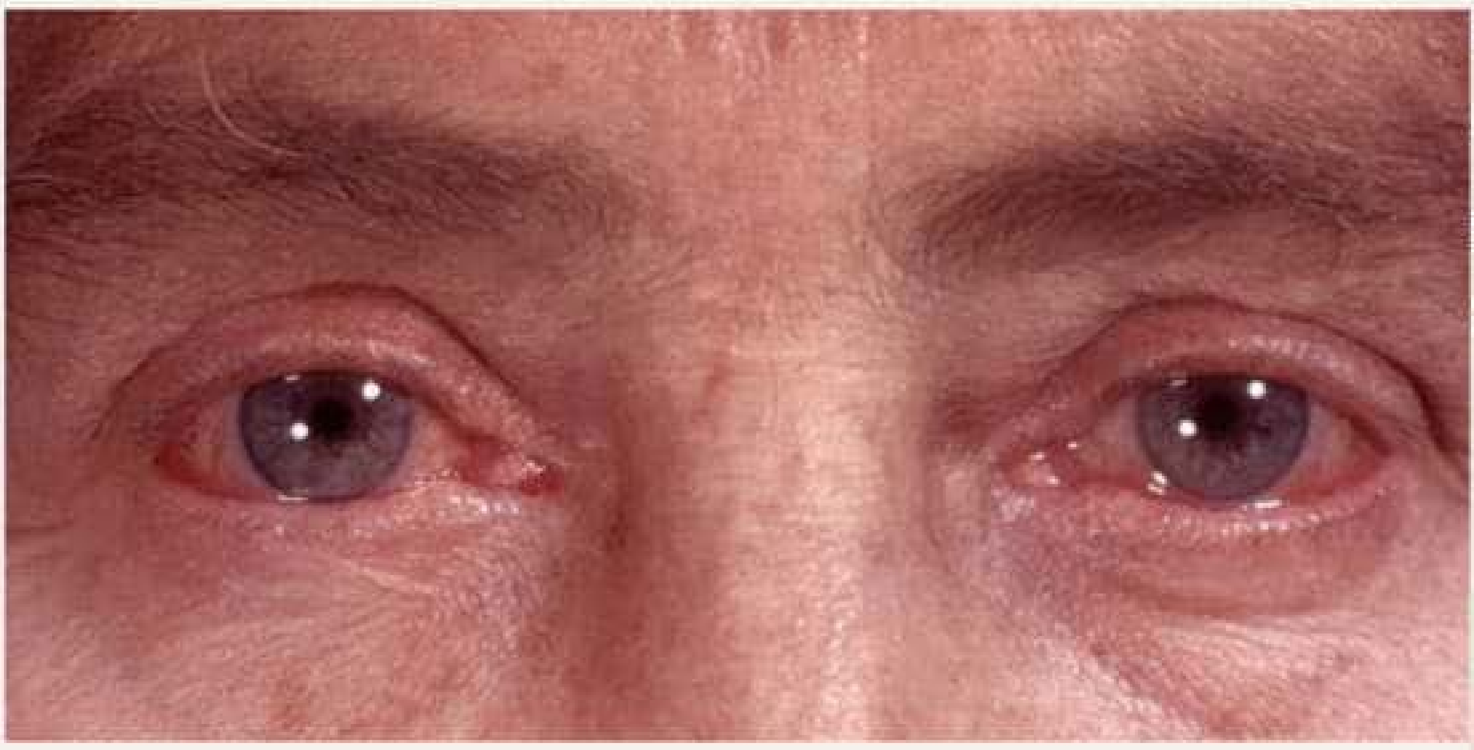
Which of the following is the most appropriate intervention?

A	Oral co-amoxiclav
B	Oral naproxen
C	Oral prednisolone
D	Topical chloramphenicol
E	Topical corticosteroids

71645

A 47-year-old man presents to the Emergency Department with bilateral red eyes which are associated with feelings of pain and grittiness. There is no significant exudate from the eyes.

His eyes are pictured below.



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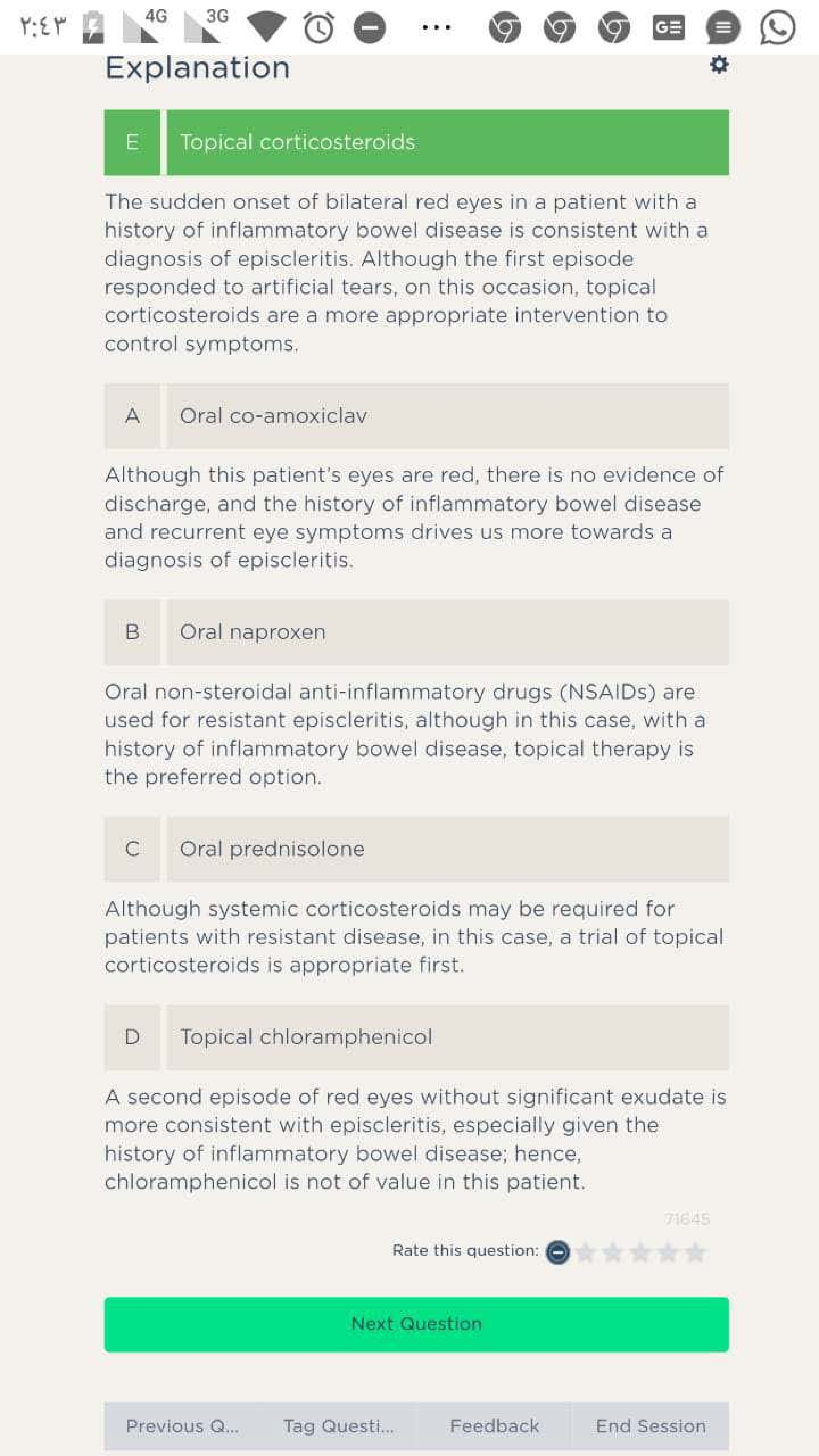
Explanation

E Topical corticosteroids



Explanation

E Topical corticosteroids

The sudden onset of bilateral red eyes in a patient with a history of inflammatory bowel disease is consistent with a diagnosis of episcleritis. Although the first episode responded to artificial tears, on this occasion, topical corticosteroids are a more appropriate intervention to control symptoms.

A Oral co-amoxiclav

Although this patient's eyes are red, there is no evidence of discharge, and the history of inflammatory bowel disease and recurrent eye symptoms drives us more towards a diagnosis of episcleritis.

B Oral naproxen

Oral non-steroidal anti-inflammatory drugs (NSAIDs) are used for resistant episcleritis, although in this case, with a history of inflammatory bowel disease, topical therapy is the preferred option.

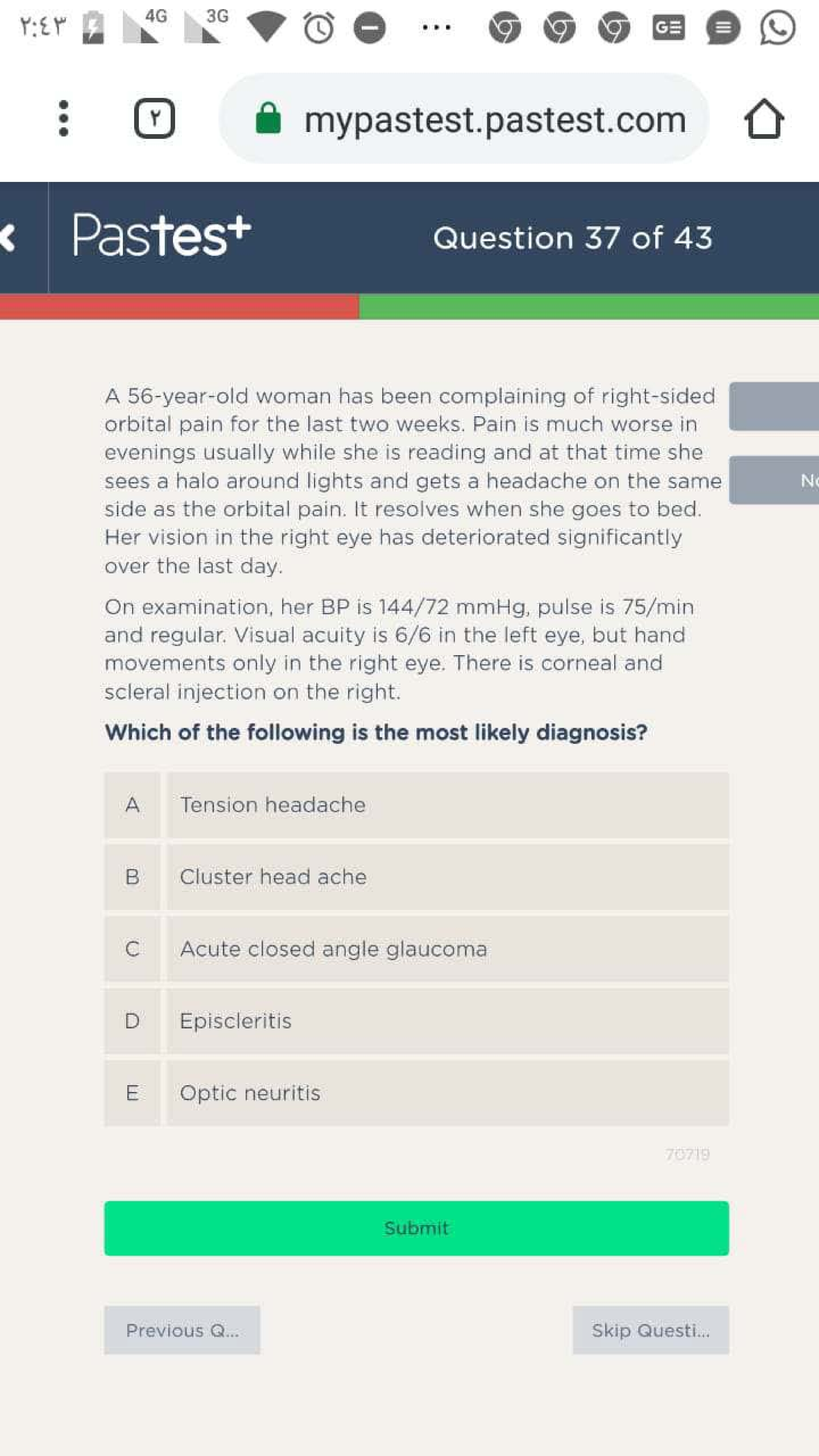
C Oral prednisolone

Although systemic corticosteroids may be required for patients with resistant disease, in this case, a trial of topical corticosteroids is appropriate first.

D Topical chloramphenicol

A second episode of red eyes without significant exudate is more consistent with episcleritis, especially given the history of inflammatory bowel disease; hence, chloramphenicol is not of value in this patient.

71645



Question 37 of 43

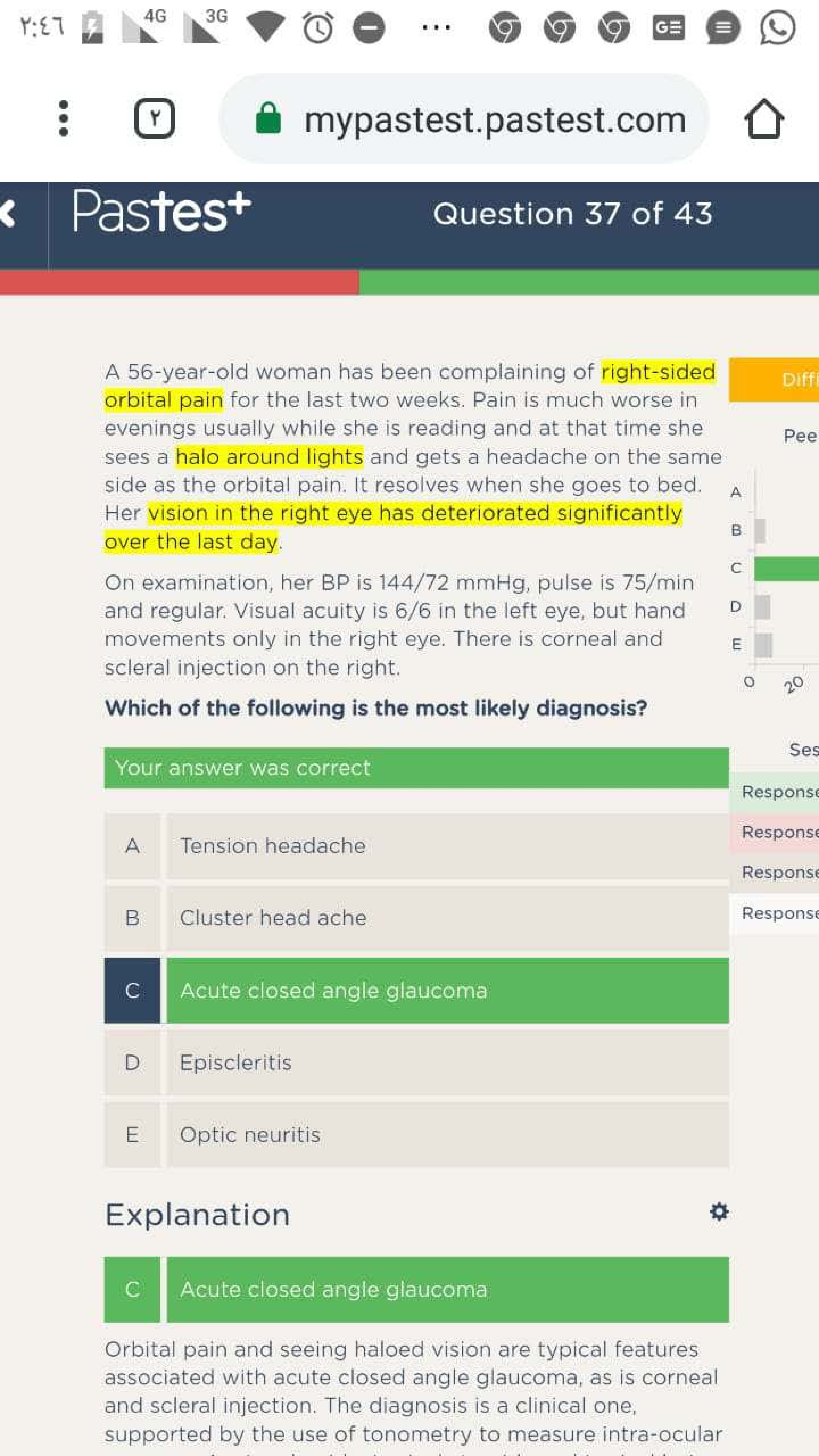
A 56-year-old woman has been complaining of right-sided orbital pain for the last two weeks. Pain is much worse in evenings usually while she is reading and at that time she sees a halo around lights and gets a headache on the same side as the orbital pain. It resolves when she goes to bed. Her vision in the right eye has deteriorated significantly over the last day.

On examination, her BP is 144/72 mmHg, pulse is 75/min and regular. Visual acuity is 6/6 in the left eye, but hand movements only in the right eye. There is corneal and scleral injection on the right.

Which of the following is the most likely diagnosis?

A Tension headache
B Cluster head ache
C Acute closed angle glaucoma
D Episcleritis
E Optic neuritis

70719



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Which of the following is the most likely diagnosis?

Your answer was correct

A Tension headache

B Cluster head ache

C Acute closed angle glaucoma

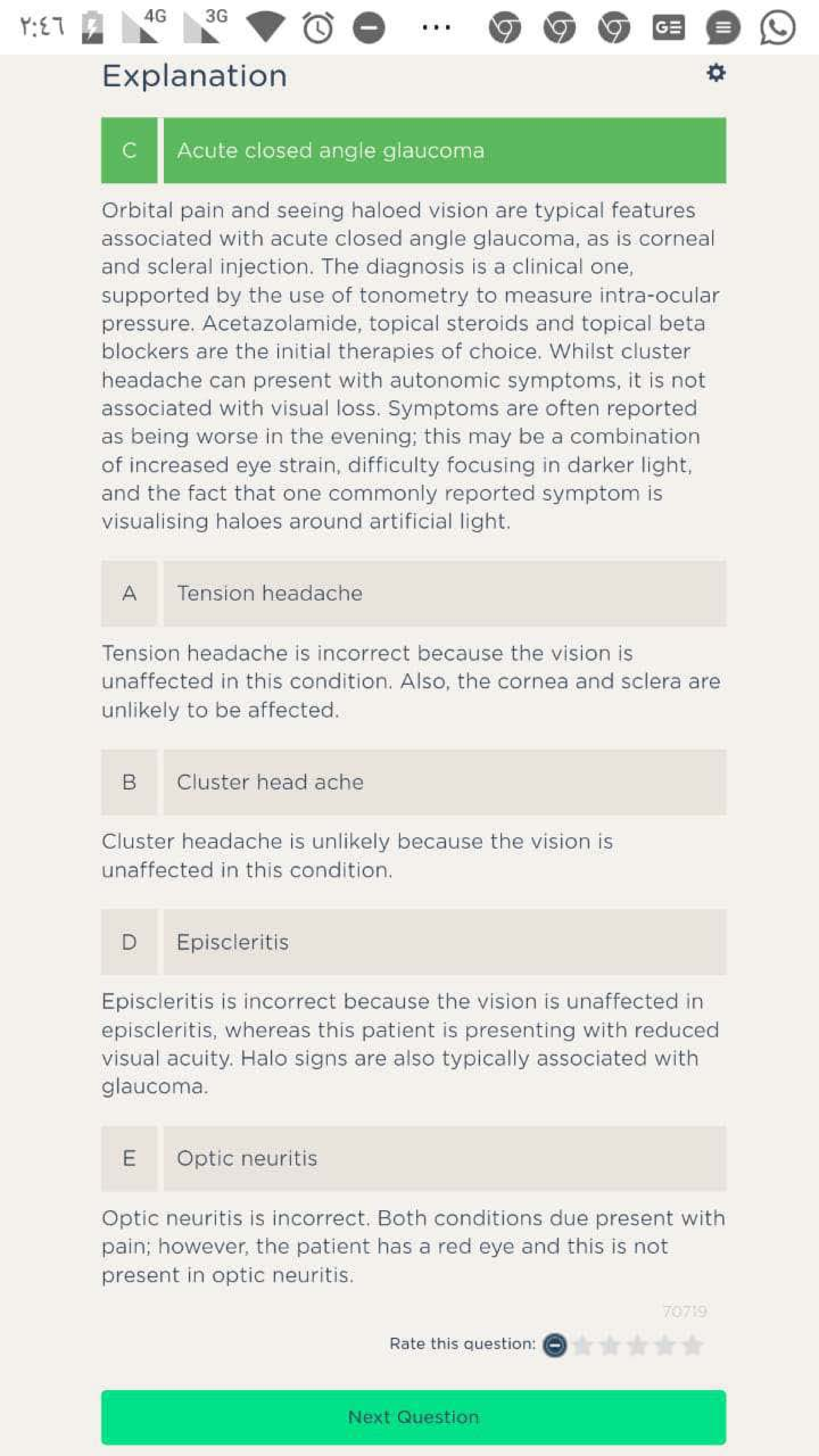
D Episcleritis

E Optic neuritis

Explanation

C Acute closed angle glaucoma

Orbital pain and seeing haloed vision are typical features associated with acute closed angle glaucoma, as is corneal and scleral injection. The diagnosis is a clinical one, supported by the use of tonometry to measure intra-ocular



Explanation

C Acute closed angle glaucoma

Orbital pain and seeing haloed vision are typical features associated with acute closed angle glaucoma, as is corneal and scleral injection. The diagnosis is a clinical one, supported by the use of tonometry to measure intra-ocular pressure. Acetazolamide, topical steroids and topical beta blockers are the initial therapies of choice. Whilst cluster headache can present with autonomic symptoms, it is not associated with visual loss. Symptoms are often reported as being worse in the evening; this may be a combination of increased eye strain, difficulty focusing in darker light, and the fact that one commonly reported symptom is visualising haloes around artificial light.

A Tension headache

Tension headache is incorrect because the vision is unaffected in this condition. Also, the cornea and sclera are unlikely to be affected.

B Cluster head ache

Cluster headache is unlikely because the vision is unaffected in this condition.

D Episcleritis

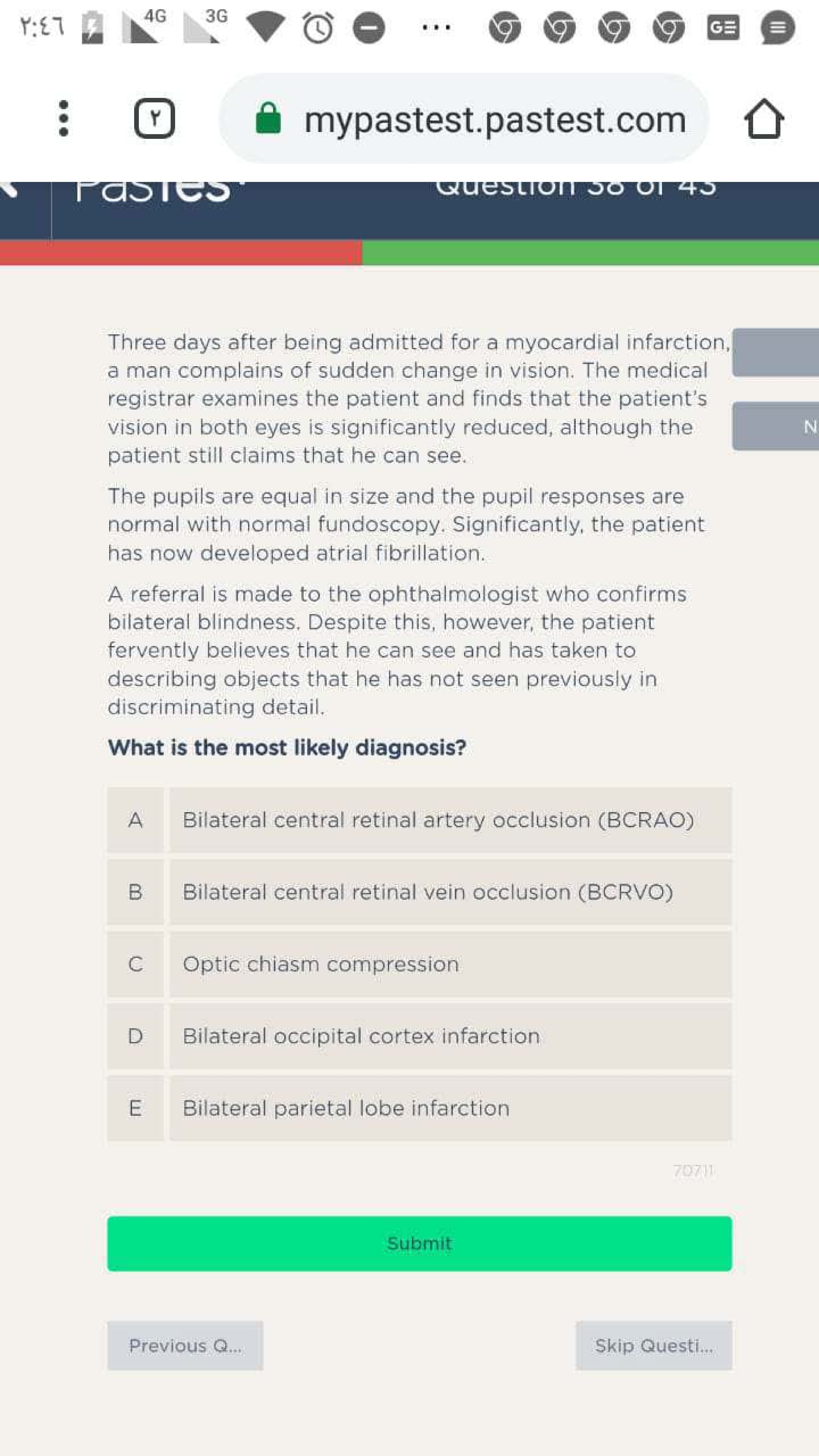
Episcleritis is incorrect because the vision is unaffected in episcleritis, whereas this patient is presenting with reduced visual acuity. Halo signs are also typically associated with glaucoma.

E Optic neuritis

Optic neuritis is incorrect. Both conditions due present with pain; however, the patient has a red eye and this is not present in optic neuritis.

70719

Rate this question: ☆☆☆☆☆



Three days after being admitted for a myocardial infarction, a man complains of sudden change in vision. The medical registrar examines the patient and finds that the patient's vision in both eyes is significantly reduced, although the patient still claims that he can see.

The pupils are equal in size and the pupil responses are normal with normal fundoscopy. Significantly, the patient has now developed atrial fibrillation.

A referral is made to the ophthalmologist who confirms bilateral blindness. Despite this, however, the patient fervently believes that he can see and has taken to describing objects that he has not seen previously in discriminating detail.

What is the most likely diagnosis?

A Bilateral central retinal artery occlusion (BCRAO)

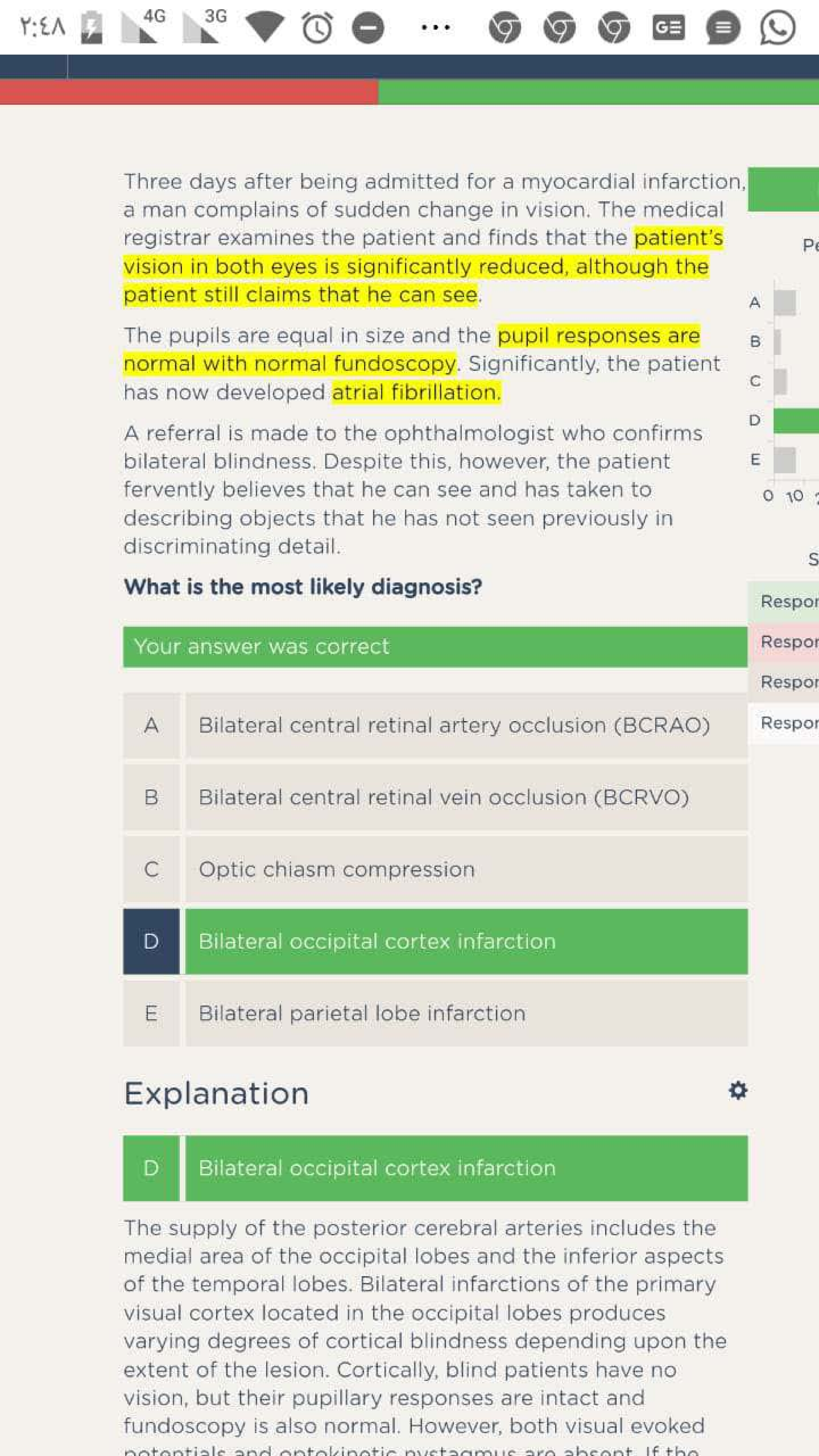
B Bilateral central retinal vein occlusion (BCRVO)

C Optic chiasm compression

D Bilateral occipital cortex infarction

E Bilateral parietal lobe infarction

70711



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B Bilateral central retinal vein occlusion (BCRVO)

C Optic chiasm compression

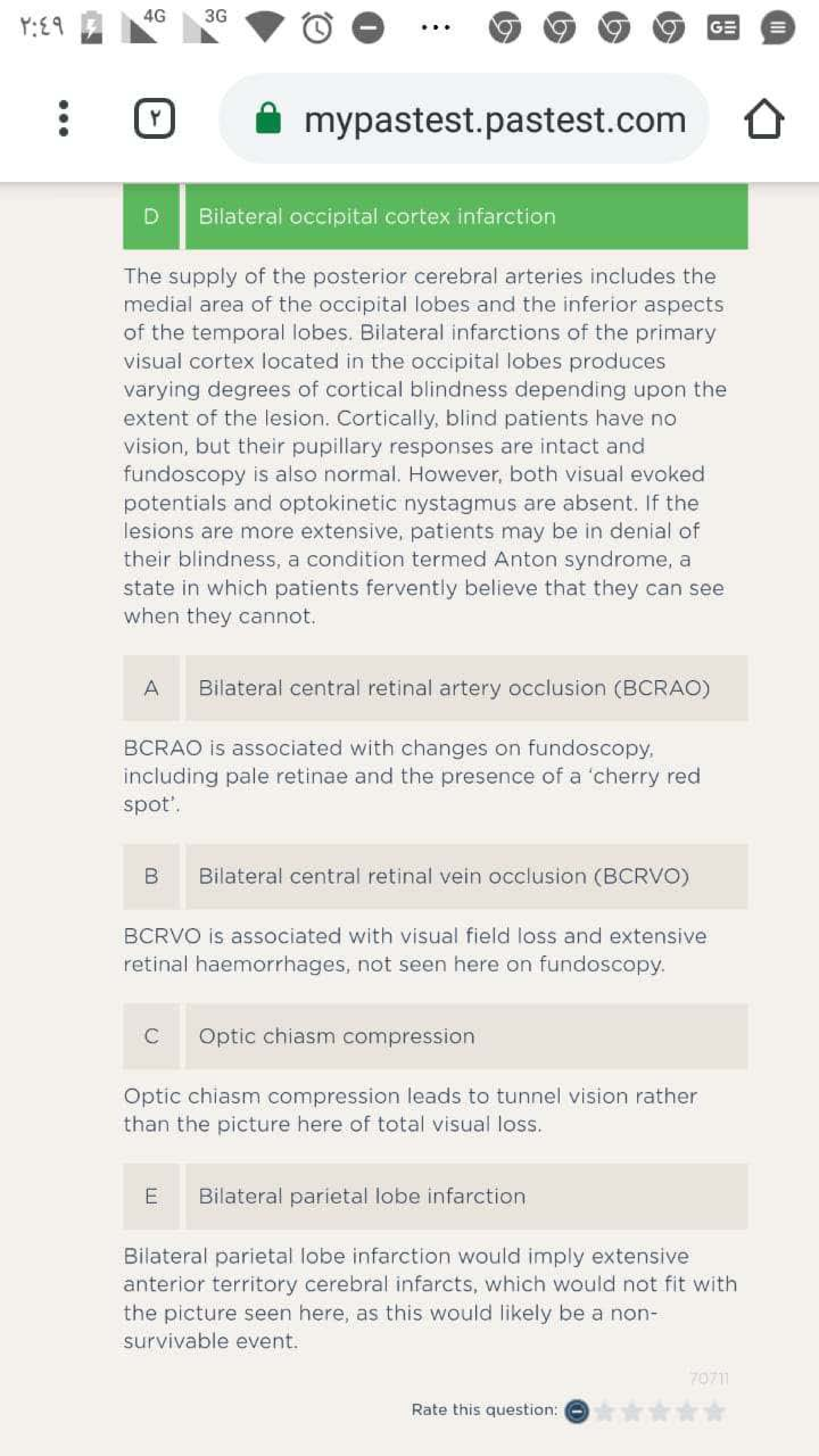
D Bilateral occipital cortex infarction

E Bilateral parietal lobe infarction

Explanation

D Bilateral occipital cortex infarction

The supply of the posterior cerebral arteries includes the medial area of the occipital lobes and the inferior aspects of the temporal lobes. Bilateral infarctions of the primary visual cortex located in the occipital lobes produces varying degrees of cortical blindness depending upon the extent of the lesion. Cortically, blind patients have no vision, but their pupillary responses are intact and fundoscopy is also normal. However, both visual evoked potentials and optokinetic nystagmus are absent. If the



D Bilateral occipital cortex infarction

The supply of the posterior cerebral arteries includes the medial area of the occipital lobes and the inferior aspects of the temporal lobes. Bilateral infarctions of the primary visual cortex located in the occipital lobes produces varying degrees of cortical blindness depending upon the extent of the lesion. Cortically, blind patients have no vision, but their pupillary responses are intact and fundoscopy is also normal. However, both visual evoked potentials and optokinetic nystagmus are absent. If the lesions are more extensive, patients may be in denial of their blindness, a condition termed Anton syndrome, a state in which patients fervently believe that they can see when they cannot.

A Bilateral central retinal artery occlusion (BCRAO)

BCRAO is associated with changes on fundoscopy, including pale retinae and the presence of a 'cherry red spot'.

B Bilateral central retinal vein occlusion (BCRVO)

BCRVO is associated with visual field loss and extensive retinal haemorrhages, not seen here on fundoscopy.

C Optic chiasm compression

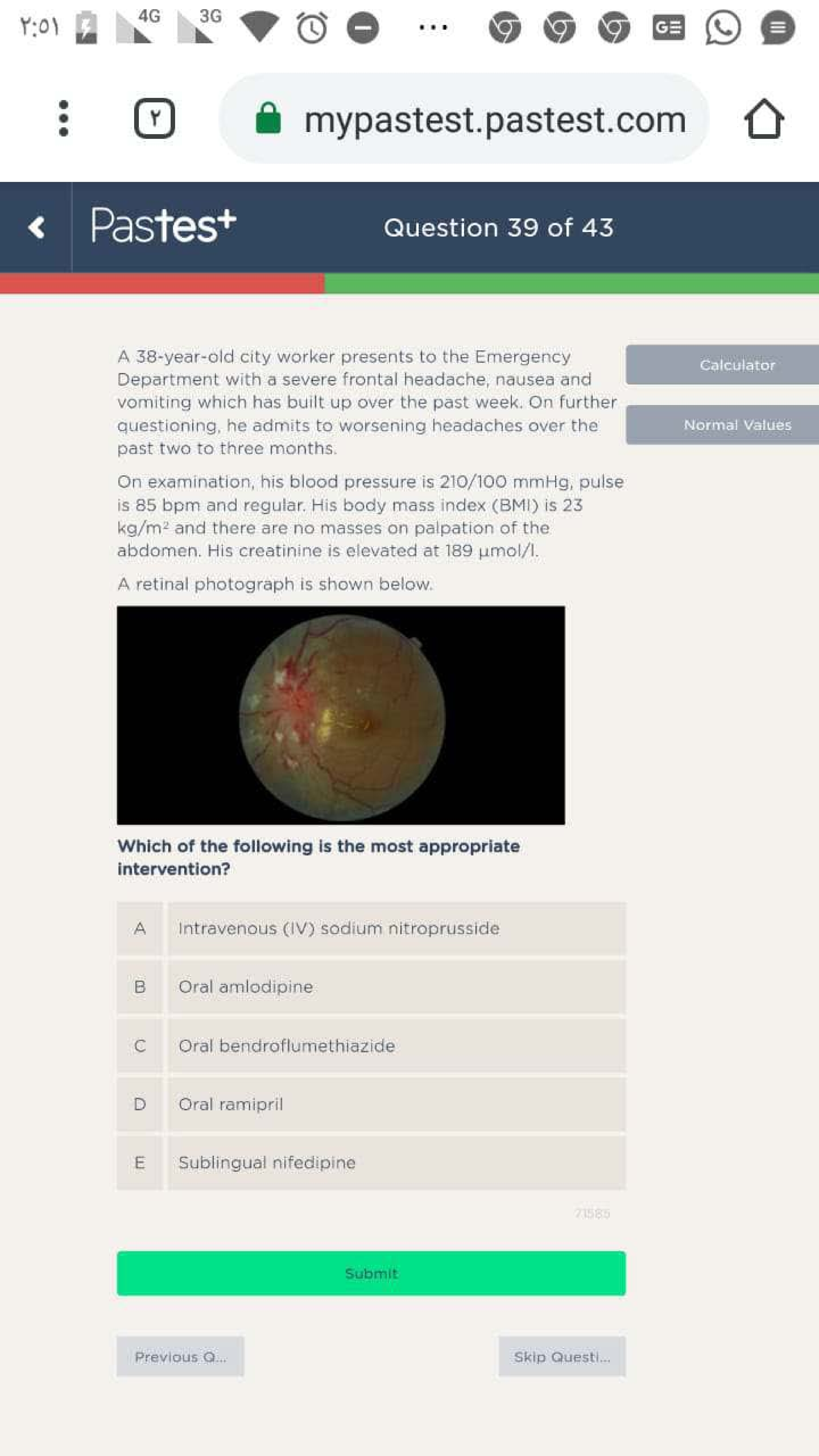
Optic chiasm compression leads to tunnel vision rather than the picture here of total visual loss.

E Bilateral parietal lobe infarction

Bilateral parietal lobe infarction would imply extensive anterior territory cerebral infarcts, which would not fit with the picture seen here, as this would likely be a non-survivable event.

70711

Rate this question: ⊖ ☆☆☆☆☆



A 38-year-old city worker presents to the Emergency Department with a severe frontal headache, nausea and vomiting which has built up over the past week. On further questioning, he admits to worsening headaches over the past two to three months.

On examination, his blood pressure is 210/100 mmHg, pulse is 85 bpm and regular. His body mass index (BMI) is 23 kg/m^2 and there are no masses on palpation of the abdomen. His creatinine is elevated at 189 µmol/l.

A retinal photograph is shown below.

Which of the following is the most appropriate intervention?

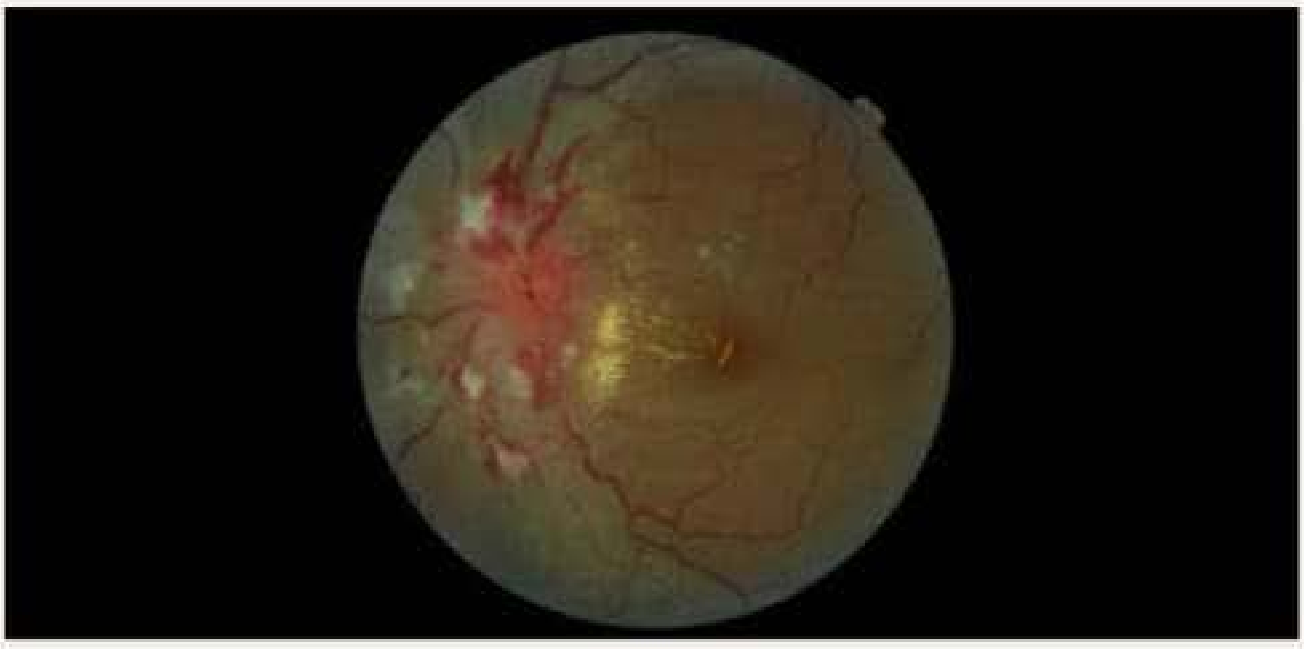
A	Intravenous (IV) sodium nitroprusside
B	Oral amlodipine
C	Oral bendroflumethiazide
D	Oral ramipril
E	Sublingual nifedipine

71585

A 38-year-old city worker presents to the Emergency Department with a severe frontal headache, nausea and vomiting which has built up over the past week. On further questioning, he admits to worsening headaches over the past two to three months.

On examination, his blood pressure is 210/100 mmHg, pulse is 85 bpm and regular. His body mass index (BMI) is 23 kg/m^2 and there are no masses on palpation of the abdomen. His creatinine is elevated at 189 µmol/l.

A retinal photograph is shown below.



Which of the following is the most appropriate intervention?

Your answer was correct

A	Intravenous (IV) sodium nitroprusside
B	Oral amlodipine
C	Oral bendroflumethiazide
D	Oral ramipril
E	Sublingual nifedipine

Explanation

A Intravenous (IV) sodium nitroprusside

This patient has grade 4 hypertensive retinopathy against a background of steadily worsening headaches, marked hypertension with renal impairment and a BMI in the

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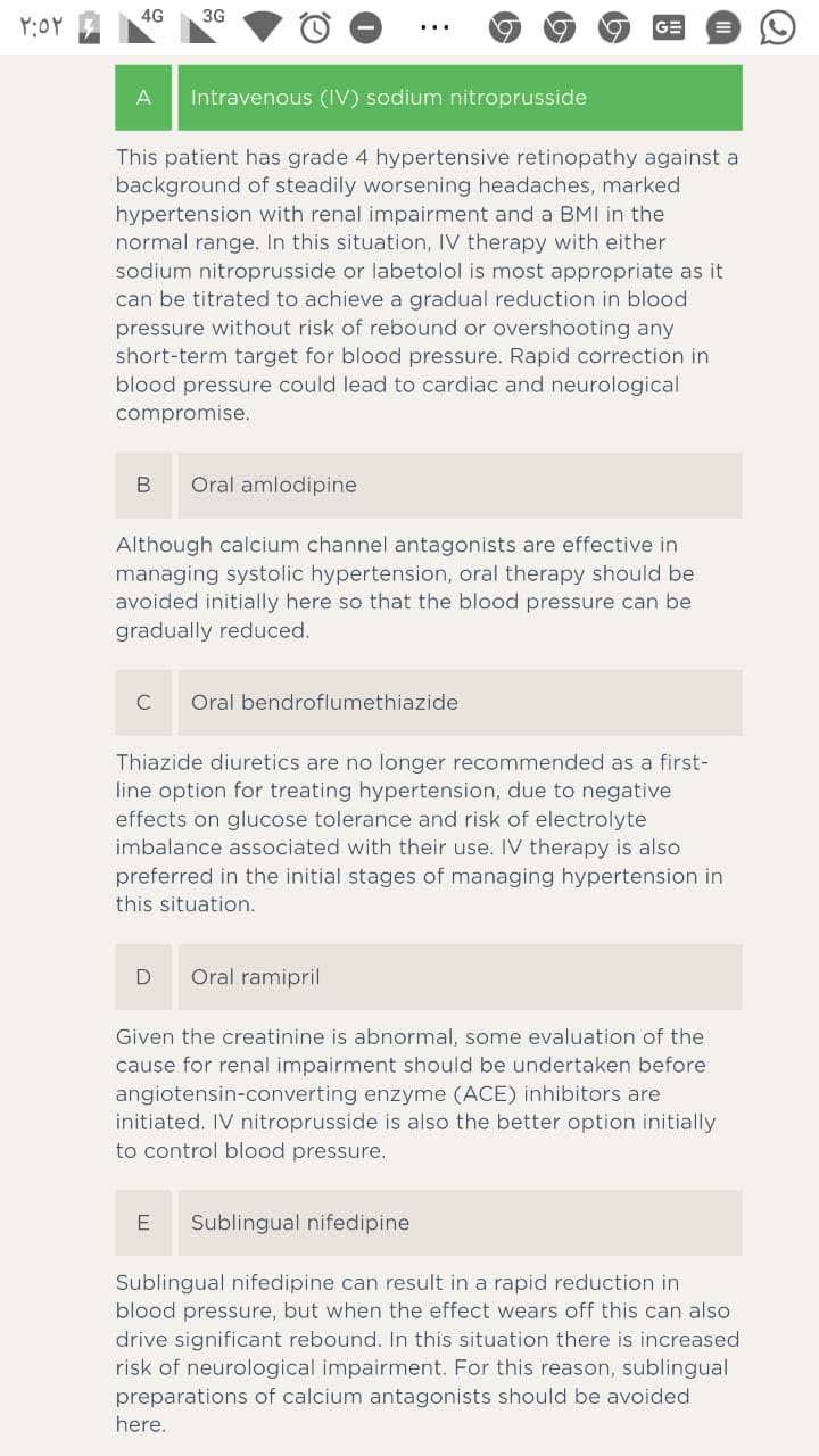


A Intravenous (IV) sodium nitroprusside

This patient has grade 4 hypertensive retinopathy against a background of steadily worsening headaches, marked hypertension with renal impairment and a BMI in the normal range. In this situation, IV therapy with either sodium nitroprusside or labetolol is most appropriate as it can be titrated to achieve a gradual reduction in blood pressure without risk of rebound or overshooting any short-term target for blood pressure. Rapid correction in blood pressure could lead to cardiac and neurological compromise.

B Oral amlodipine

Although calcium channel antagonists are effective in managing systolic hypertension, oral therapy should be avoided initially here so that the blood pressure can be gradually reduced.

C Oral bendroflumethiazide

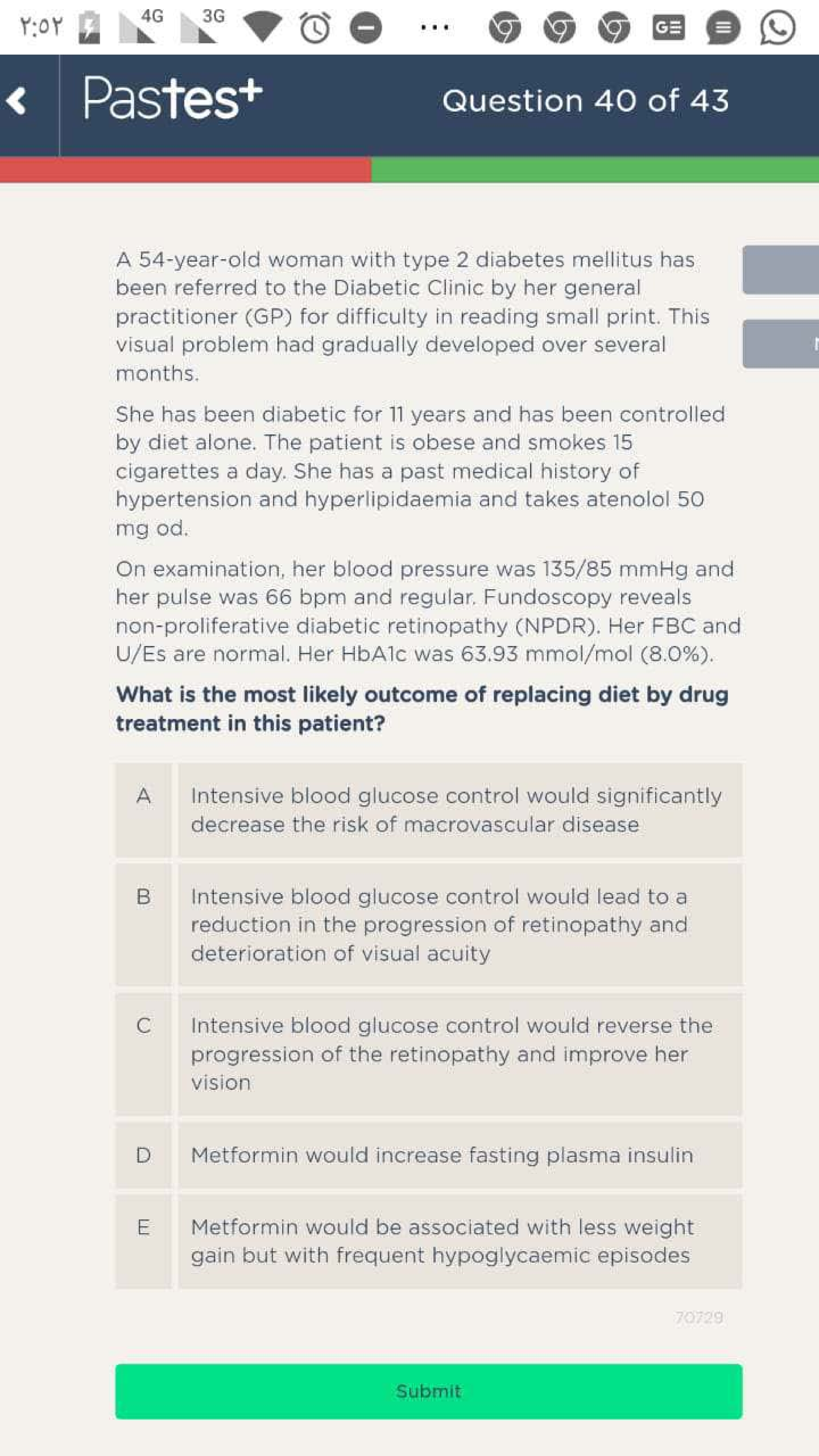
Thiazide diuretics are no longer recommended as a first-line option for treating hypertension, due to negative effects on glucose tolerance and risk of electrolyte imbalance associated with their use. IV therapy is also preferred in the initial stages of managing hypertension in this situation.

D Oral ramipril

Given the creatinine is abnormal, some evaluation of the cause for renal impairment should be undertaken before angiotensin-converting enzyme (ACE) inhibitors are initiated. IV nitroprusside is also the better option initially to control blood pressure.

E Sublingual nifedipine

Sublingual nifedipine can result in a rapid reduction in blood pressure, but when the effect wears off this can also drive significant rebound. In this situation there is increased risk of neurological impairment. For this reason, sublingual preparations of calcium antagonists should be avoided here.



Question 40 of 43

A 54-year-old woman with type 2 diabetes mellitus has been referred to the Diabetic Clinic by her general practitioner (GP) for difficulty in reading small print. This visual problem had gradually developed over several months.

She has been diabetic for 11 years and has been controlled by diet alone. The patient is obese and smokes 15 cigarettes a day. She has a past medical history of hypertension and hyperlipidaemia and takes atenolol 50 mg od.

On examination, her blood pressure was 135/85 mmHg and her pulse was 66 bpm and regular. Fundoscopy reveals non-proliferative diabetic retinopathy (NPDR). Her FBC and U/Es are normal. Her HbA1c was 63.93 mmol/mol (8.0%).

What is the most likely outcome of replacing diet by drug treatment in this patient?

A Intensive blood glucose control would significantly decrease the risk of macrovascular disease

B Intensive blood glucose control would lead to a reduction in the progression of retinopathy and deterioration of visual acuity

C Intensive blood glucose control would reverse the progression of the retinopathy and improve her vision

D Metformin would increase fasting plasma insulin

E Metformin would be associated with less weight gain but with frequent hypoglycaemic episodes

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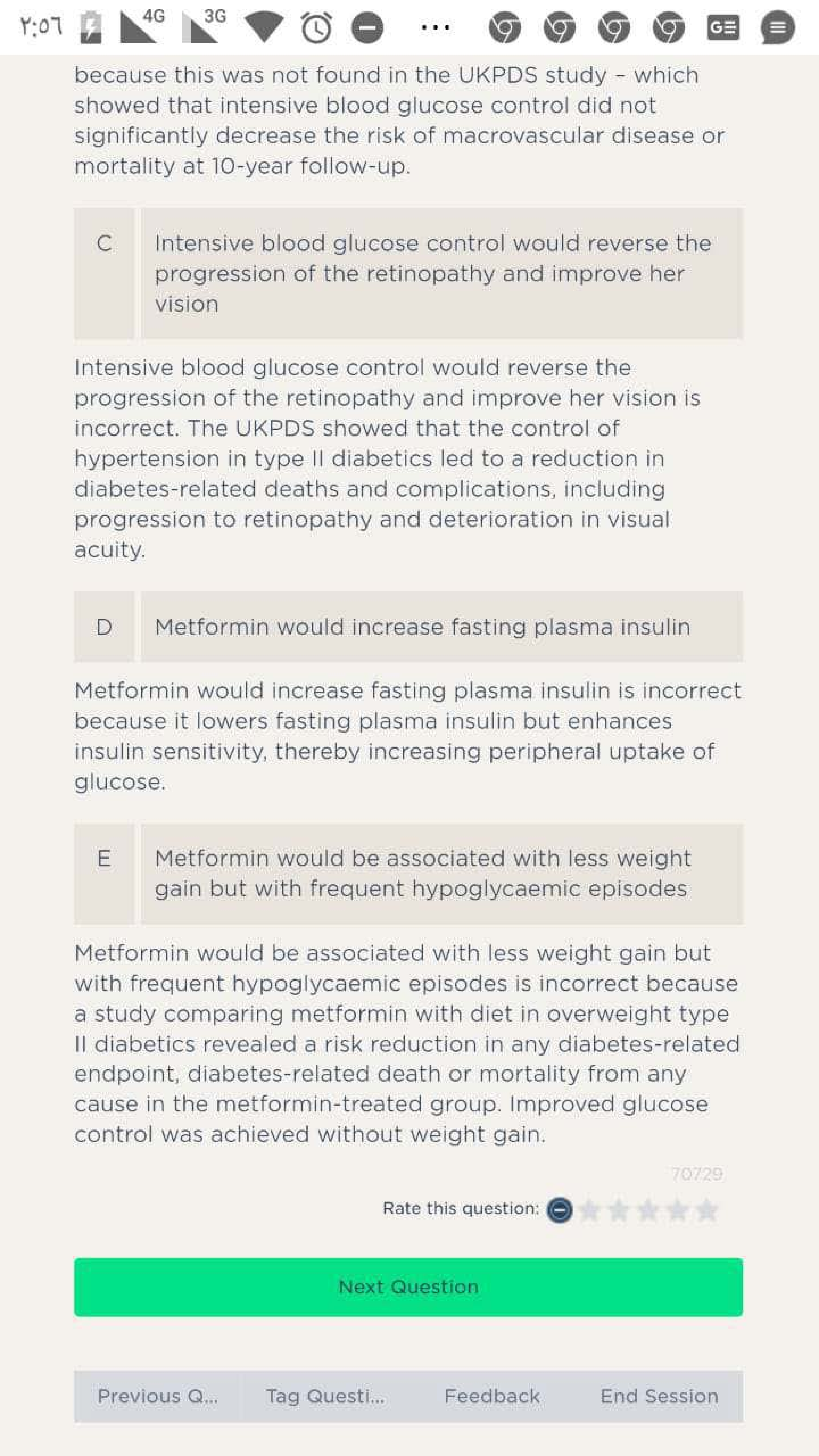

because this was not found in the UKPDS study – which showed that intensive blood glucose control did not significantly decrease the risk of macrovascular disease or mortality at 10-year follow-up.

C Intensive blood glucose control would reverse the progression of the retinopathy and improve her vision

Intensive blood glucose control would reverse the progression of the retinopathy and improve her vision is incorrect. The UKPDS showed that the control of hypertension in type II diabetics led to a reduction in diabetes-related deaths and complications, including progression to retinopathy and deterioration in visual acuity.

D Metformin would increase fasting plasma insulin

Metformin would increase fasting plasma insulin is incorrect because it lowers fasting plasma insulin but enhances insulin sensitivity, thereby increasing peripheral uptake of glucose.

E Metformin would be associated with less weight gain but with frequent hypoglycaemic episodes

Metformin would be associated with less weight gain but with frequent hypoglycaemic episodes is incorrect because a study comparing metformin with diet in overweight type II diabetics revealed a risk reduction in any diabetes-related endpoint, diabetes-related death or mortality from any cause in the metformin-treated group. Improved glucose control was achieved without weight gain.

70729

B Intensive blood glucose control would lead to a reduction in the progression of retinopathy and deterioration of visual acuity

The United Kingdom Prospective Diabetes Study (UKPDS) was designed to establish whether intensive blood glucose control was of benefit in reducing the microvascular and macrovascular complications of type II diabetes. It also studied the outcome with different treatments. Diabetic control was assessed by measurements of HbA1c and was found to be significantly better in drug treatment groups than those treated by diet alone. There was a 25% risk reduction of developing microvascular complications in the drug-treated groups compared to those on diet alone. However, intensive blood glucose control did not significantly decrease the risk of macrovascular disease or mortality at the original 10 year follow-up time point.

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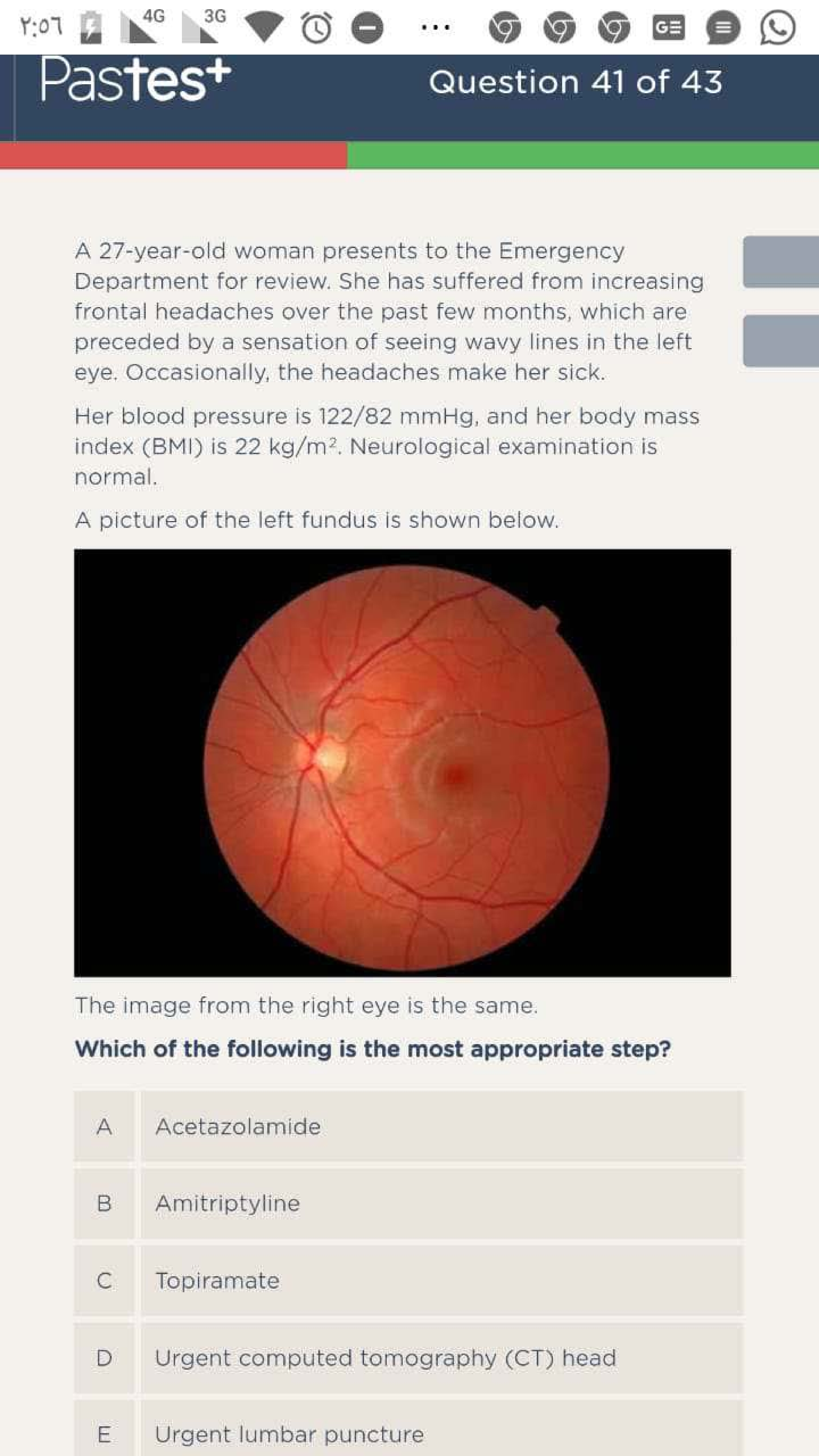


A 27-year-old woman presents to the Emergency Department for review. She has suffered from increasing frontal headaches over the past few months, which are preceded by a sensation of seeing wavy lines in the left eye. Occasionally, the headaches make her sick.

Her blood pressure is 122/82 mmHg, and her body mass index (BMI) is 22 kg/m^2. Neurological examination is normal.

A picture of the left fundus is shown below.

The image from the right eye is the same.

Which of the following is the most appropriate step?

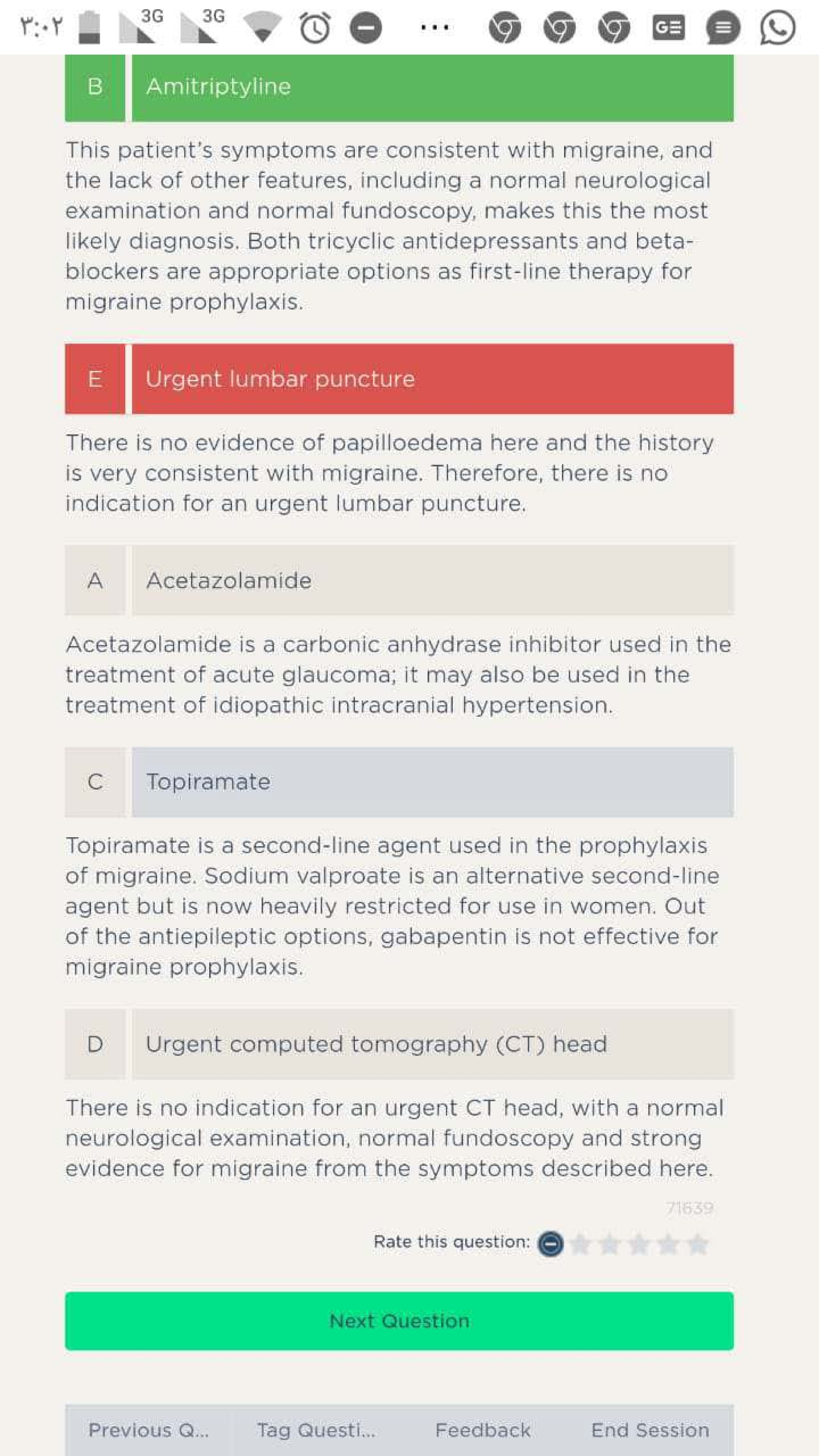
A Acetazolamide

B Amitriptyline

C Topiramate

D Urgent computed tomography (CT) head

E Urgent lumbar puncture



B Amitriptyline

This patient's symptoms are consistent with migraine, and the lack of other features, including a normal neurological examination and normal fundoscopy, makes this the most likely diagnosis. Both tricyclic antidepressants and beta-blockers are appropriate options as first-line therapy for migraine prophylaxis.

E Urgent lumbar puncture

There is no evidence of papilloedema here and the history is very consistent with migraine. Therefore, there is no indication for an urgent lumbar puncture.

A Acetazolamide

Acetazolamide is a carbonic anhydrase inhibitor used in the treatment of acute glaucoma; it may also be used in the treatment of idiopathic intracranial hypertension.

C Topiramate

Topiramate is a second-line agent used in the prophylaxis of migraine. Sodium valproate is an alternative second-line agent but is now heavily restricted for use in women. Out of the antiepileptic options, gabapentin is not effective for migraine prophylaxis.

D Urgent computed tomography (CT) head

There is no indication for an urgent CT head, with a normal neurological examination, normal fundoscopy and strong evidence for migraine from the symptoms described here.

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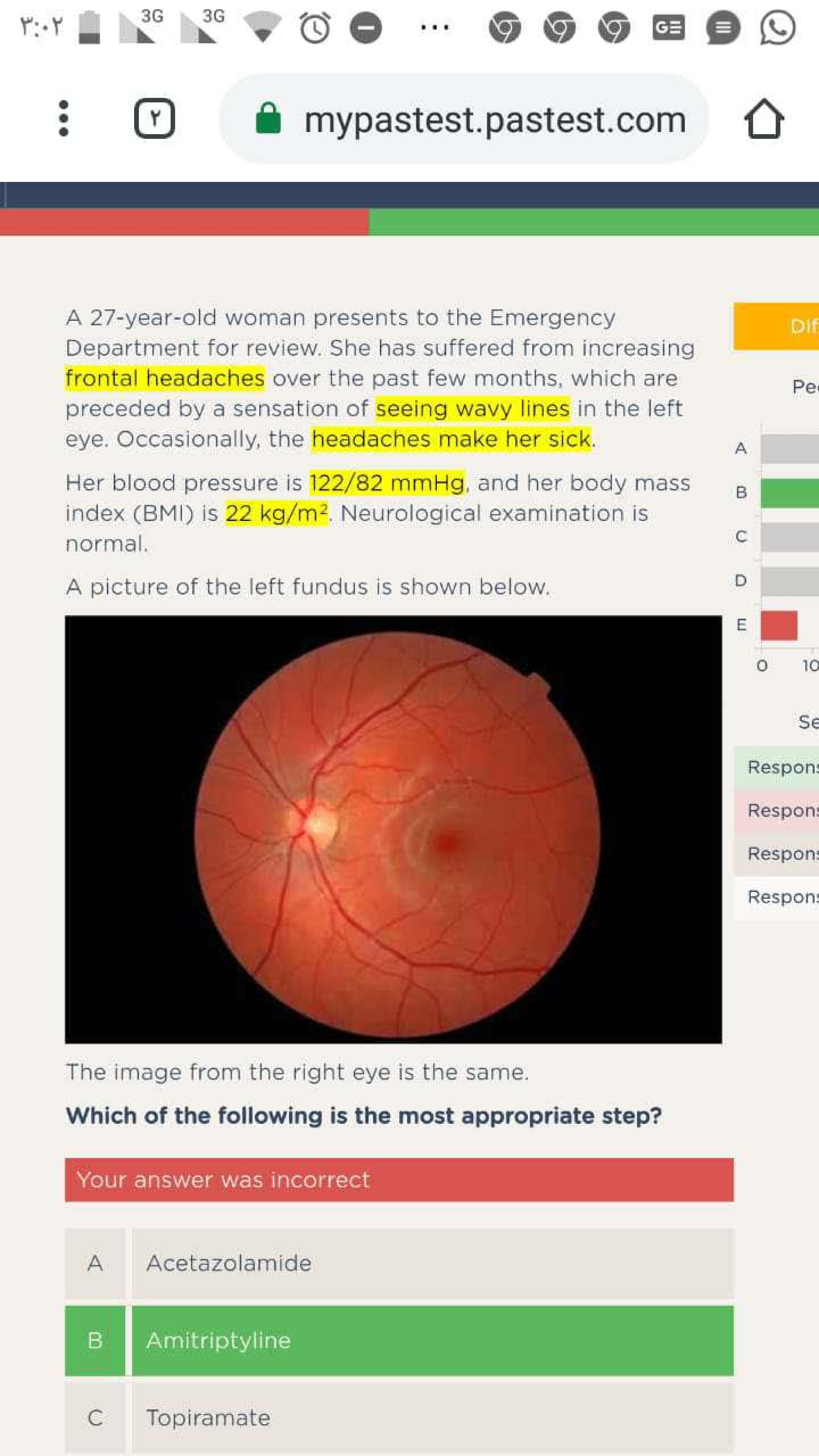

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A picture of the left fundus is shown below.

The image from the right eye is the same.

Which of the following is the most appropriate step?

Your answer was incorrect

A Acetazolamide

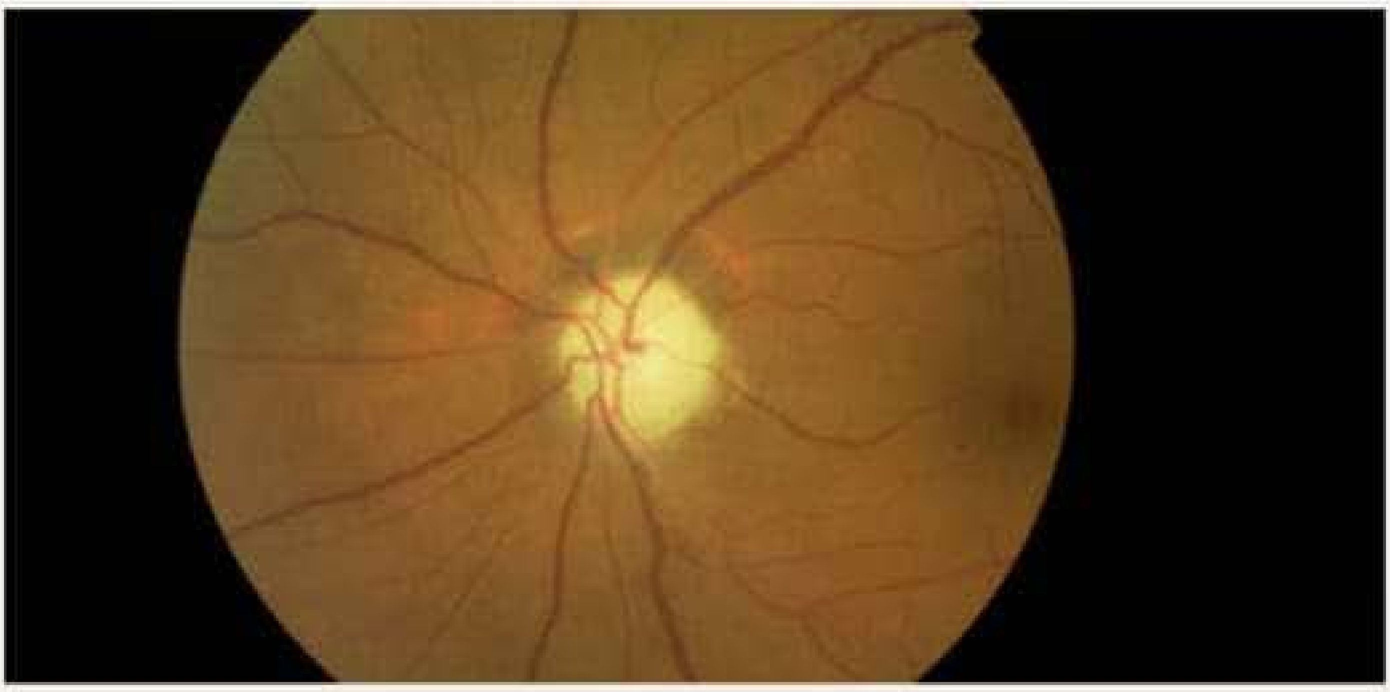
B Amitriptyline

C Topiramate

A 24-year-old woman comes to the Neurology Clinic for review. She developed an ataxic gait, suffered vestibular nerve dysfunction, and has lost vision in her left eye over the past 18 months. Her symptoms have improved and she has recovered slightly in the past two months.

A magnetic resonance imaging (MRI) scan of her brain has demonstrated multiple white matter changes.

An image of her left retina is shown below.



Which of the following is she most likely to benefit from?

A	Azathioprine
B	Dimethyl fumarate
C	Interferon alpha
D	Methylprednisolone
E	Natalizumab

Pastest+ Question 42 of 43

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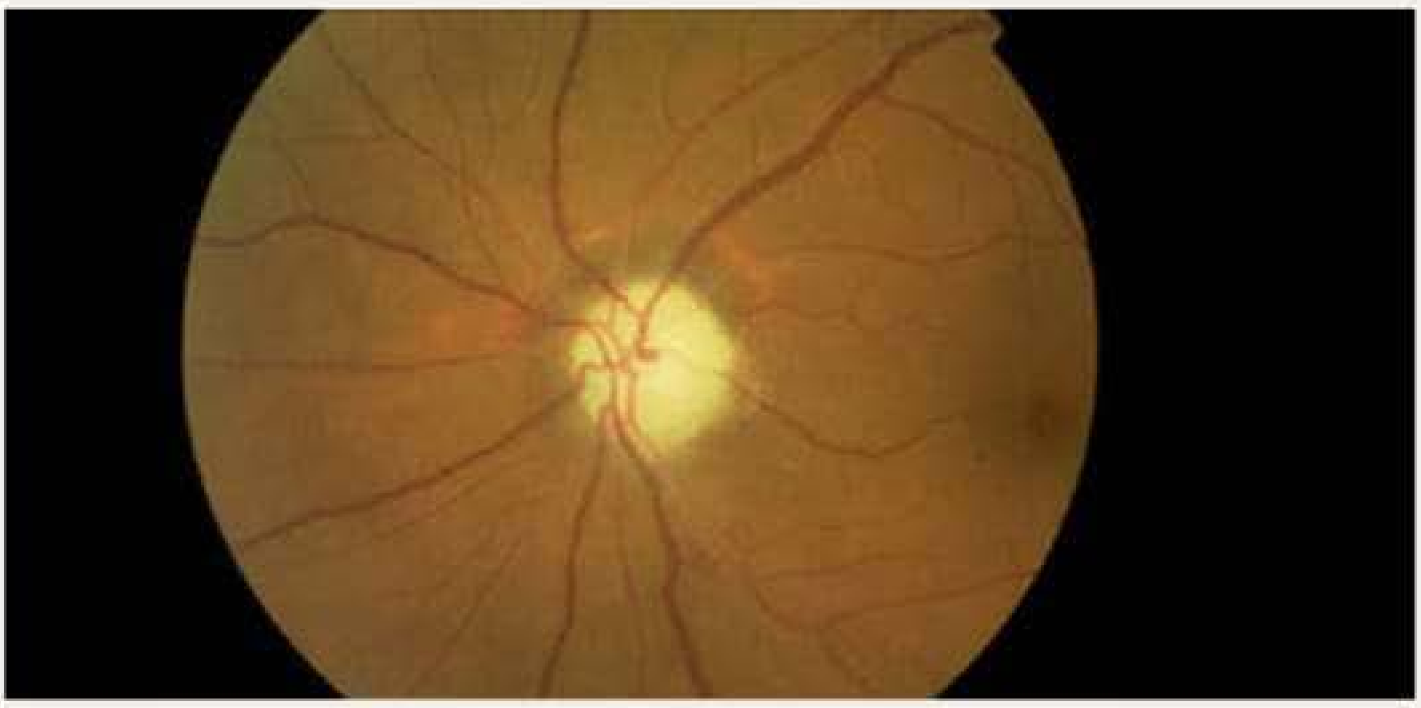

Which of the following is she most likely to benefit from?

Your answer was incorrect

A Azathioprine

B Dimethyl fumarate

C Interferon alpha

D Methylprednisolone

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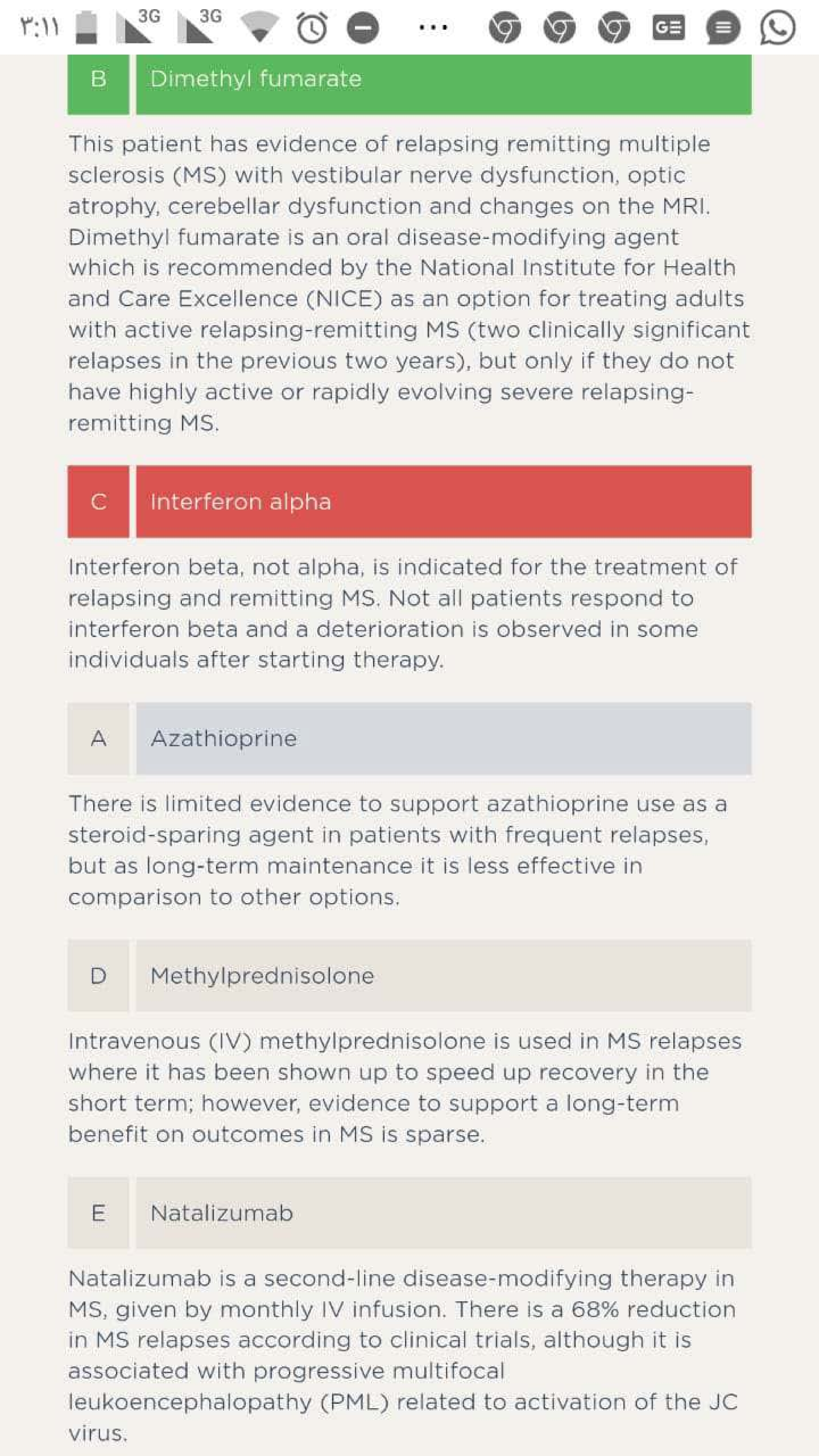


B Dimethyl fumarate

This patient has evidence of relapsing remitting multiple sclerosis (MS) with vestibular nerve dysfunction, optic atrophy, cerebellar dysfunction and changes on the MRI. Dimethyl fumarate is an oral disease-modifying agent which is recommended by the National Institute for Health and Care Excellence (NICE) as an option for treating adults with active relapsing-remitting MS (two clinically significant relapses in the previous two years), but only if they do not have highly active or rapidly evolving severe relapsing-remitting MS.

C Interferon alpha

Interferon beta, not alpha, is indicated for the treatment of relapsing and remitting MS. Not all patients respond to interferon beta and a deterioration is observed in some individuals after starting therapy.

A Azathioprine

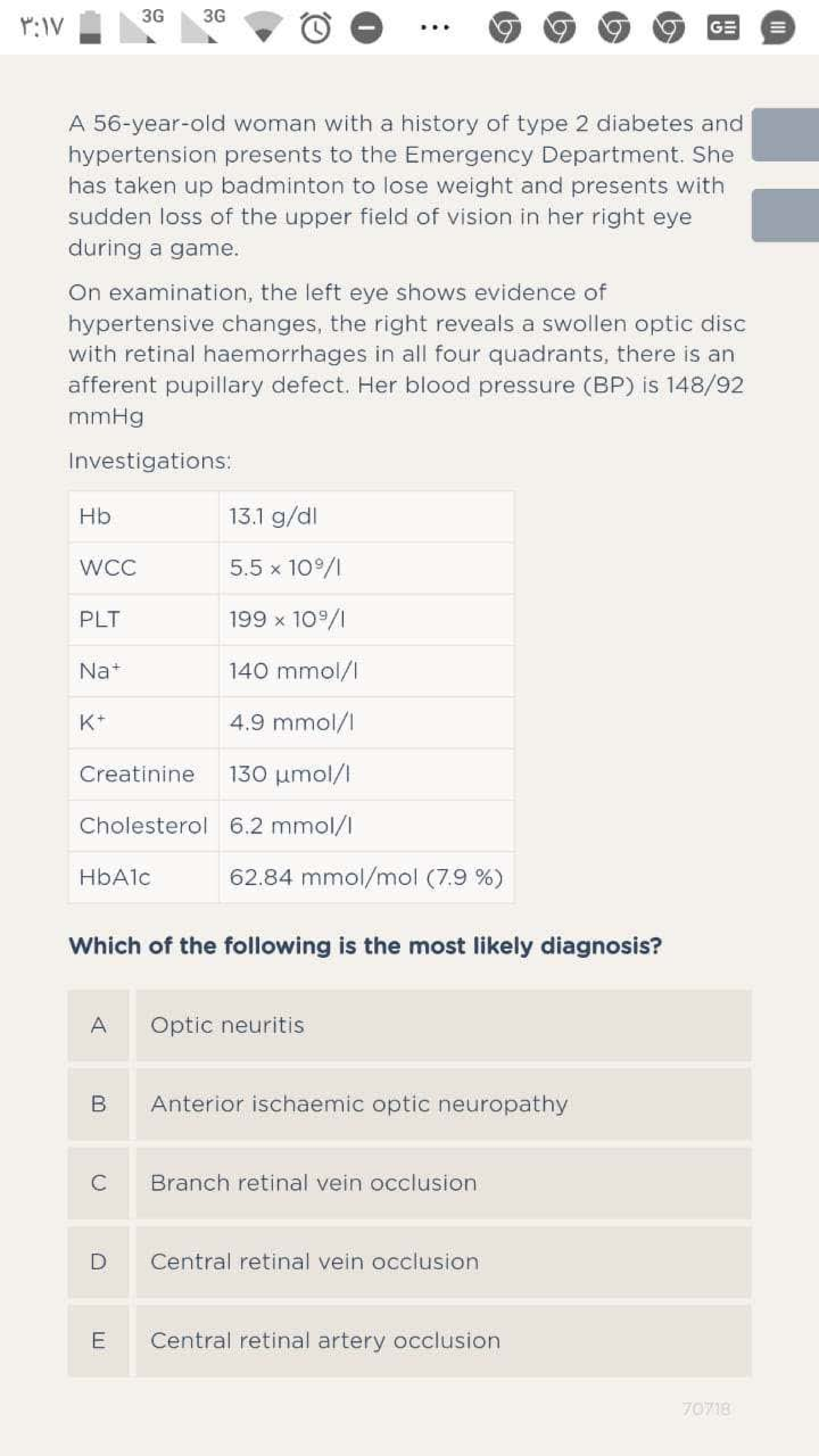
There is limited evidence to support azathioprine use as a steroid-sparing agent in patients with frequent relapses, but as long-term maintenance it is less effective in comparison to other options.

D Methylprednisolone

Intravenous (IV) methylprednisolone is used in MS relapses where it has been shown up to speed up recovery in the short term; however, evidence to support a long-term benefit on outcomes in MS is sparse.

E Natalizumab

Natalizumab is a second-line disease-modifying therapy in MS, given by monthly IV infusion. There is a 68% reduction in MS relapses according to clinical trials, although it is associated with progressive multifocal leukoencephalopathy (PML) related to activation of the JC virus.



A 56-year-old woman with a history of type 2 diabetes and hypertension presents to the Emergency Department. She has taken up badminton to lose weight and presents with sudden loss of the upper field of vision in her right eye during a game.

On examination, the left eye shows evidence of hypertensive changes, the right reveals a swollen optic disc with retinal haemorrhages in all four quadrants, there is an afferent pupillary defect. Her blood pressure (BP) is 148/92 mmHg

Investigations:

Hb	13.1 g/dl
WCC	5.5 × 10^9/l
PLT	199 × 10^9/l
Na^+	140 mmol/l
K^+	4.9 mmol/l
Creatinine	130 µmol/l
Cholesterol	6.2 mmol/l
HbA1c	62.84 mmol/mol (7.9 %)

Which of the following is the most likely diagnosis?

A	Optic neuritis
B	Anterior ischaemic optic neuropathy
C	Branch retinal vein occlusion
D	Central retinal vein occlusion
E	Central retinal artery occlusion

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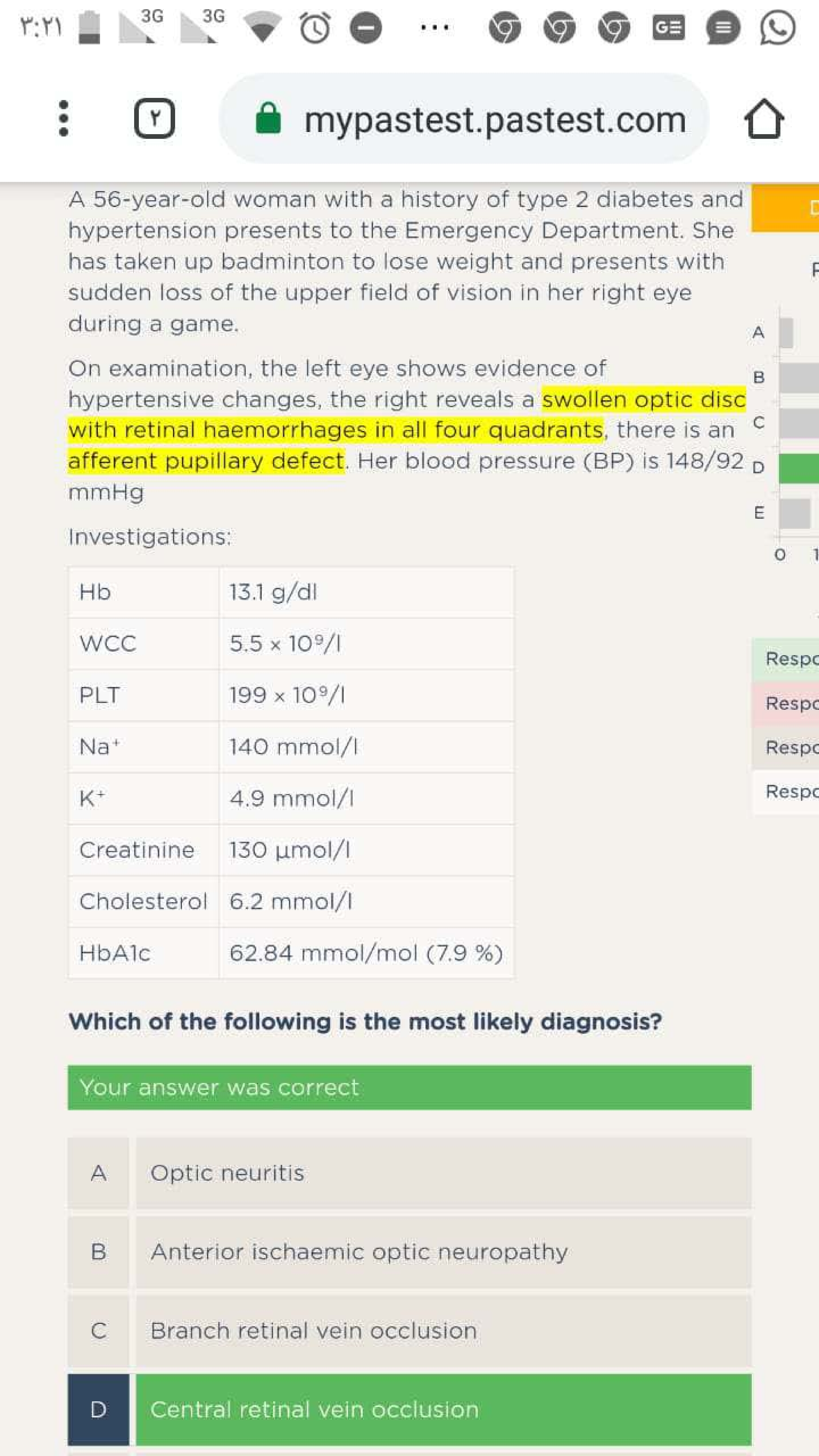

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Which of the following is the most likely diagnosis?

Your answer was correct

A	Optic neuritis
B	Anterior ischaemic optic neuropathy
C	Branch retinal vein occlusion
D	Central retinal vein occlusion

D Central retinal vein occlusion

The correct answer is central retinal vein occlusion which occurs with increased frequency in patients with a history of diabetes mellitus. Both retinal haemorrhages and oedema of the optic disc, with an afferent pupil defect are typical of the condition. The area of visual field loss may be variable, particularly during the early stages after retinal vein thrombosis occurs. Colour Doppler imaging is a non-invasive way to image the retrobulbar circulation, but the investigation of choice is fluorscein angiography. Blood work is targeted at identifying any underlying cause of hypercoagulability and consideration of either anti-platelet agents such as aspirin or anti-coagulation with warfarin. No effective treatments for central retinal vein occlusion have been identified although intra-ocular corticosteroids may have a role to play in associated macular oedema. Ischaemic optic neuropathy usually presents with a pale white oedematous optic disc.

A Optic neuritis

Optic neuritis is incorrect because it does not cause flame haemorrhages in all four quadrants.

B Anterior ischaemic optic neuropathy

Anterior ischaemic optic neuropathy is incorrect because ischaemic optic neuropathy usually presents with a pale white oedematous optic disc.

C Branch retinal vein occlusion

Branch retinal vein occlusion is incorrect because it causes sectoral haemorrhages, and not haemorrhages in all four corners which is more likely to be caused by a central retinal vein occlusion.

E Central retinal artery occlusion

Central retinal artery occlusion is incorrect because it causes a pale fundus with a cherry class red spot at the macula, rather than with flame haemorrhages in all four quadrants of the eye, like in this scenario.

70718

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